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By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS



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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. EL555596538US

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<input checked="" type="checkbox"/> Additional inventors are being named on the <u>one</u> separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
DISCOVERY AND ANALYSIS OF SYSTEM AND DATABASE INVENTORIES FOR SERVER CONSOLIDATION					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input checked="" type="checkbox"/> Customer Number		34225		Place Customer Number Bar Code Label here	
OR		Type Customer Number here			
<input checked="" type="checkbox"/> Firm or Individual Name		Unisys Corporation			
Address		25725 Jeronimo Road, MS400			
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ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification		Number of Pages		180	
<input type="checkbox"/> Drawing(s)		Number of Sheets		<input type="checkbox"/> CD(s), Number	
<input type="checkbox"/> Application Data Sheet		See 37 CFR 1.76		<input type="checkbox"/> Other (specify)	
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.				FILING FEE AMOUNT (\$)	
<input type="checkbox"/> A check or money order is enclosed to cover the filing fees				41,839	
<input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number:		19-3790		\$160.00	
<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are:					

Respectfully submitted,

SIGNATURE

Phuong Quan Hoang

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Date

3/19/03

REGISTRATION NO.

(if appropriate)
Docket Number:

41,839

03-013

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

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PROVISIONAL APPLICATION COVER SHEET **Additional Page**

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Docket Number			03-013		
INVENTOR(S)/APPLICANT(S)					
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Number 2 of 2

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INVENTIONS AND INVENTORS

- 1) **The business process of remote discovery and analysis. (Joe Stefaniak, Gene Mutschler, Jonathan Ziebell , Mac Vazhegoo)**
- 2) **The business process of rules verification and deployment. (Sriram Devanathan , Jonathan, Jeff Moore, Chuck Steel)**
- 3) **The process of gathering computer system inventories in accordance with a controlling model and loading the inventories in an ODBC compliant database for analysis. (Joe Stefaniak , Mac Vazhegoo, Bob Harrison)**
- 4) **The process of gathering a SQL database inventories in accordance with a controlling model and loading the inventories in an ODBC compliant database for analysis. (Mac Vazhegoo, Bob Harrison)**
- 5) **The process of analyzing one or more computer system inventories. (Joe Stefaniak , Gene Mutschler, Tony Crider)**
- 6) **The process of analyzing one or more SQL database inventories. (Mac Vazhegoo, Tony Crider)**
- 7) **The process of rules-based deployment. (Sriram Devanathan, Bob Harrison, Jonathan Ziebell, Jeff Moore)**
- 8) **The process of integrating discovery, analysis, and deployment with a CM tool. (Jonathan Ziebell , Jeff Moore, Chuck Steel)**

Application Sentinel 1.1 Application Asset Manager 2.0 Document Revision 2

Business or IT problem this feature solves (what)

The changing dynamics of today's data centers require IT organizations to constantly evaluate and manage the runtime assets of their organization to achieve higher levels of system availability, manageability and interoperability. The Application Asset Manager (AAM) provides the overall integrated framework for managing the complexity of change associated with runtime applications and databases. Using a framework structure, Unisys has built integrated, domain specific tooling (i.e. Server Consolidation specific applications) to focus both consultants, when the tool is used in consolidation engagements, and administrators skills to maximize the availability, manageability and interoperability of runtime applications executing on an ES7000.

Where customers chose to use Unisys technical consulting services to assist in this area, the availability of an integrated framework will sharply reduce the Unisys cost of service delivery. The framework makes building and using domain specific tooling easier by providing a reusable structure for their construction and execution, thus allowing the builders and users to focus on the problem being addressed, instead of spending time recreating the common GUI interfaces or relearning new tools and procedures for each specific task.

Functional Overview (how)

The framework provides the ability to

- Permit organizations to customize its behavior based on their own requirements.
- Permit organizations to leverage the tools server-based events and triggers to provide additional levels of management for CMP-based systems (i.e. e-mail notification).
- Support asset management, and deployment.
- Version and catalog all runtime assets and the information about those assets of an organization in a centralized location using a full-featured version and configuration management system.
- Provide a methodology neutral process for managing IT runtime assets in increasingly complex configuration environments.
- Permit organizations to track incremental updates to changes, define relationships between such changes, and associate properties to any revision of any asset or configuration.
- Permit for the automation and management of the runtime environment on ES7000 systems to ensure the deployment of better software systems with repeatable success.
- Provides full database back up and restore capability
- Provides role-based security.
- Reports and logs all user transactions against any asset in the database.
- Provides full administration and management capabilities of the database using the Microsoft Management Console.

The framework will provide a rich set of asset management infrastructure capabilities, including:

- Automated discovery capability to harvest system information [such as, number of processors, available processors, processor level, revision, etc] and information about running processes [such as, process ID, owner, creation time, handles, process and dependency versions and timestamps, etc.] on specified servers located in a server farm.
- Automated discovery capability of SQL Server Database to facilitate SQL Server Consolidation. The information gathered is a detailed inventory of the customer's existing SQL Server estate, such as Servers, Instances, Databases, User and more.
- Discovered information collected is stored in the application asset manager database and is available for detailed analysis by the analysis tool.
- Analysis tool that interprets and generates reports from the information obtained during the discovery process.

- Generate reports that highlight opportunities for application consolidation and application coexistence.
- Support custom report output, sorted in any manner, on any stored attribute.
- Automated deployment of applications to one or many servers.
- Automatic detection of installed software levels on distributed systems and the capability to bring them up to date, depending on deployment rules.
- Automatic discovery and comparison of versions of installed applications across server domains.
- The capability for Administrators to define hardware resource requirement rules prior to deployment of an application.
- Scheduled based invocation of remote application and database discovery agents, with automatic import of remote output into centralized database, to permit time based analysis of applications and databases executing in a server farm
- Scheduled based invocation of deployment tools to achieve higher levels of system performance.
- Provide wildcard search, query and reporting capability on any revision of any asset stored in the database

Competition, Positioning (why)

Asset Management framework competition includes Microsoft Application Center 2000 and CA' Advantage suite.

Microsoft Application Center 2000

- Expensive -- \$3000.00 per CPU
- Great for scaling-out, doesn't push scale-up at all
- No versioning or configuration management support
- No discovery tools for applications or databases
- Not extensible
-

CA' Advantage suite

- More focused on application *development* than management
- No discovery tools for applications or databases
- Not extensible

The use of the Application Asset Manager provides more opportunities for customers to:

- Reduce costs in achieving effective system(s) utilization either through application and/or database consolidation or load balancing
- Reduce costs in managing the administrative needs associated with enterprise class applications.
- Quickly take advantage of new market opportunities by having a framework based, centralized location of application and database information, in order to quickly develop and implement new solutions that further adds value to overall data center operations
- Increase application performance by ensuring all components are at proper version and revision levels
- Inventory existing applications, databases and associated component and configuration dependencies for consolidation, debug and/or reporting analysis
- Inventory and monitor application, database and system performance thresholds over defined periods of time for workload analysis and sizing

RDP Attribute Sheet Number: 5030 10

Application Asset Manager

The Application Asset Manager (AAM) discovers and retrieves information on applications and SQL Server databases running anywhere in an enterprise's computing fabric and can instantly ascertain their suitability for consolidation and their affinity for one another in a consolidated environment. This is accomplished through AAM's Inventory and Analysis Manager.

AAM Inventory Manager

The AAM's discovery, or inventory, process is invoked through the AAM's Workbench Inventory View. The process of Inventory is non-invasive. That is, the agent software is pushed to the target system to be inventoried and the discovered data is sent back to the AAM database. Upon completion, the agents are removed from the target system. The entire process takes approximately 20 seconds per system. The information returned contains over 150 data points including information on system hardware, applications and SQL Server databases. At this time, the inventory process runs on the following Microsoft operating environments:

- All Windows 2K environments
- Windows 3K 32 bit environments (64 bit TBD).
- Windows NT 4.0
- Microsoft Windows 2K Terminal Services.

Microsoft Windows NT Terminal Services is not supported due to dependency on the CITRIX OS.

The screenshot displays the 'Application Asset Manager Workbench' interface. The top menu bar includes 'File', 'Edit', 'Tools', 'View', 'Window', and 'Help'. The main window is titled 'Application Asset Manager Workbench: Manage' and contains a left-hand navigation pane with icons for 'Assets', 'C Explorer', and 'Workbench'. The central area shows a list of assets with columns for Name, Size, Type, Location, Modified, Attributes, Version, Location, and Checksum Path. The list includes various system files and folders, with 'C:\Program Files\ATI Technologies\ATI Control Panel\ATI.Cat' highlighted. Below the list, a detailed view of the selected file is shown, including its version (02/18/2003 09:53:26 AM), label (ATI.Cat), branch (ATI.Cat), status (Ready), and source (02/18/2003 09:53:26 AM). The bottom status bar indicates '1 object(s) selected' and 'Working Path: Manage'.

Using the Inventory View, the following Inventory options are available:

- This option enables you to select a single server for Inventory. You must know the name of the host machine, and a user name and password with administrator privileges.**

- This option enables you to select a group of servers from a host list for Inventory. If you do not have an existing host list, you can create one after you select this option. You must enter a user name and password with administrator privileges for each server in the list.

- **Inventory by TCP/IP Subnet**

This option enables you to select all servers within a specific TCP/IP subnet. You must enter the network subnet address and a user name and password with administrator privileges for all systems in the subnet.

- **Inventory by Site Name**

This option enables you to select all servers in a specific site. You must enter the site name and a user name and password with administrator privileges for all systems within the site.

- **Inventory by Domain Name**

This option enables you to select all servers in a domain. You must enter the domain name and a user name and password with administrator privileges for all systems within the domain.

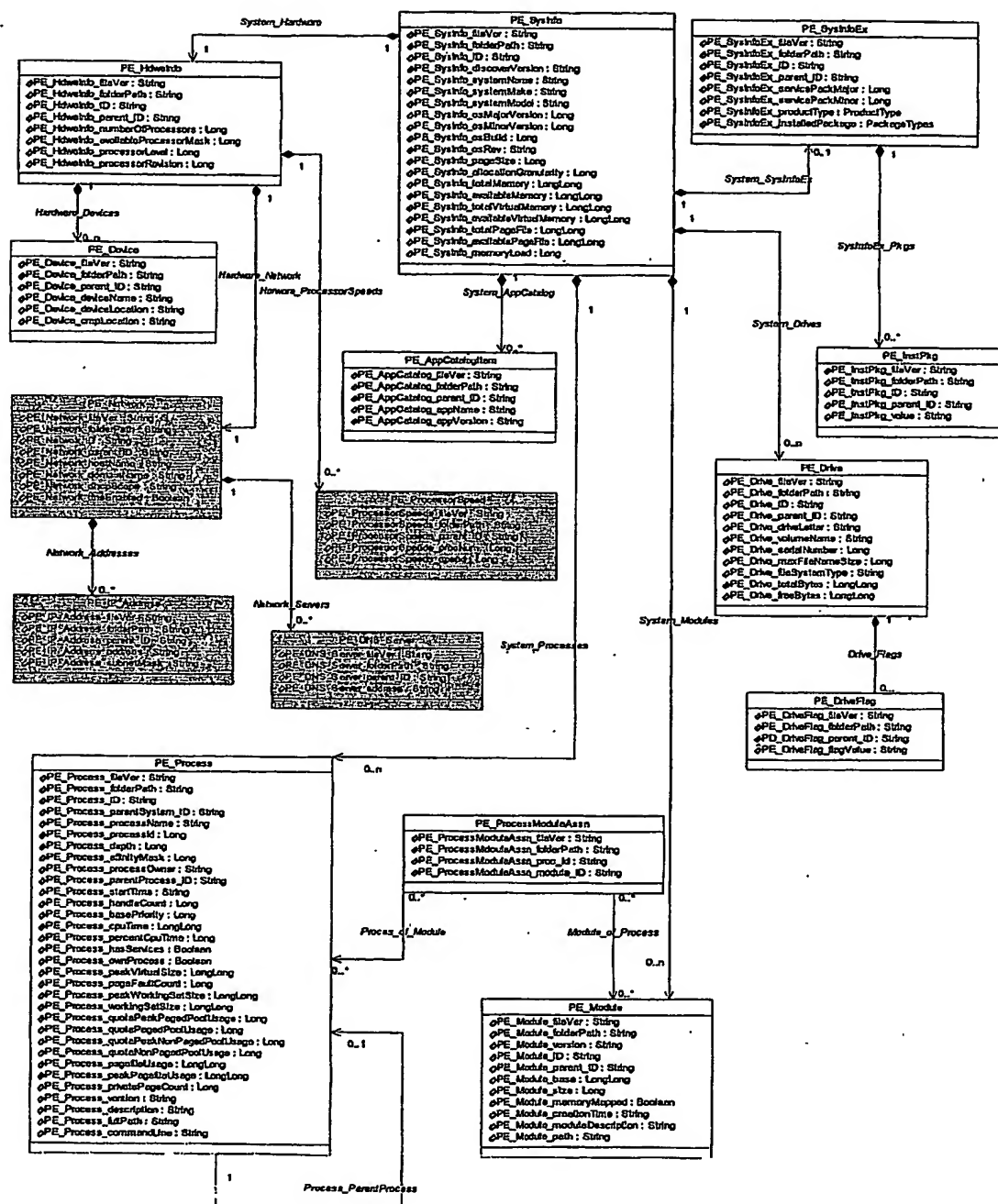
Inventory Agents

AAM contains two inventory agents, System and Application Agent and SQL Server Discovery Agent. Together these agents capture over 150 datapoints relative to system hardware, application and database configurations in a Microsoft Windows operating environment.

System and Application Agent

The System and Application Agent was designed to assist in the process of retrieving those data points necessary for analyzing existing applications to determine their suitability for consolidation and to assist in the design of a consolidated application infrastructure.

System and Application Agent facilitates the capture of a detailed inventory of the client's existing server estate, including servers, applications, databases, devices, processors, memory and much more including the relationships of such information as defined in the System and Application Agent Inventory Model.

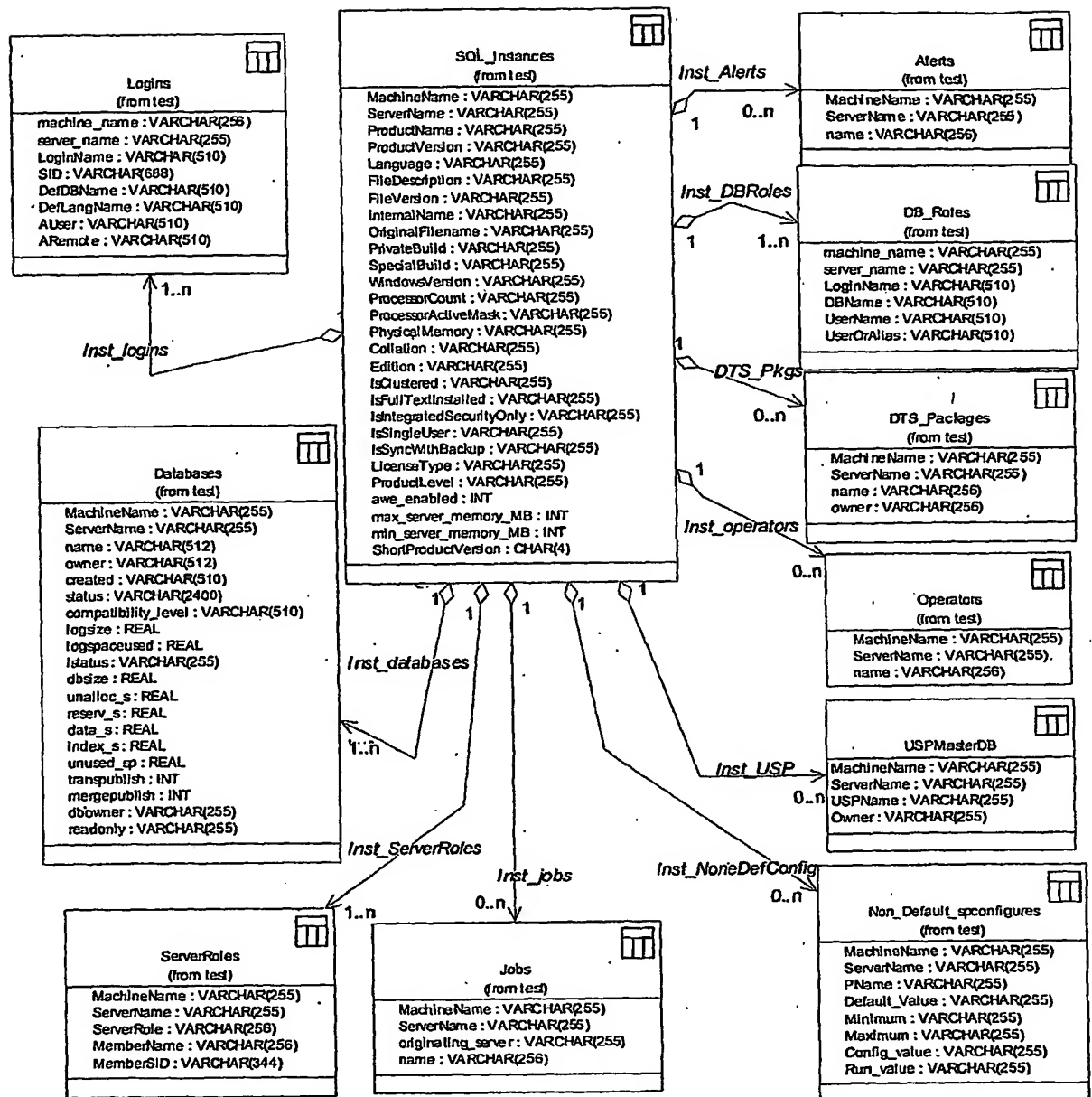


Orange tables indicate new features in AAM 2.0 for Application Sentinel 1.1. and is not part of AAM 1.1 released to TCS

SQL Server Agent

The SQL Server Database agent was designed to assist in the process of retrieving those data points necessary for analyzing existing SQL Server database implementations to determine their suitability for consolidation and to assist in the design of a consolidated SQL Server infrastructure.

SQL Server Database Agent facilitates the capture of a detailed inventory of the client's existing SQL Server estate, including servers, SQL instances, databases, users and much more much more including the relationships of such information as defined in the SQL Server Database Inventory Model.



All tables indicate new features in AAM 2.0 for Application Sentinel 1.1. and is NOT part of AAM 1.1 release to TCS.

AAM Analysis Manager

The AAM Analysis Manager permits organizations to analyze one or many inventoried systems simultaneously relative to system hardware, application and database configurations in a Microsoft Windows operating environment to highlight opportunities for application consolidation.

The Analysis Manager is invoked from the context of the AAM WorkBench after selecting the file(s), or revisions thereof, representing the system(s), applications and SQL Server databases inventoried.

Asset Management Analysis vs. Consolidation Analysis

The AAM Analysis Manager provides organizations the ability to view the assets of one or more systems simultaneously for either asset management purposes or server consolidation purposes. This ability is depending on the licensing purchased.

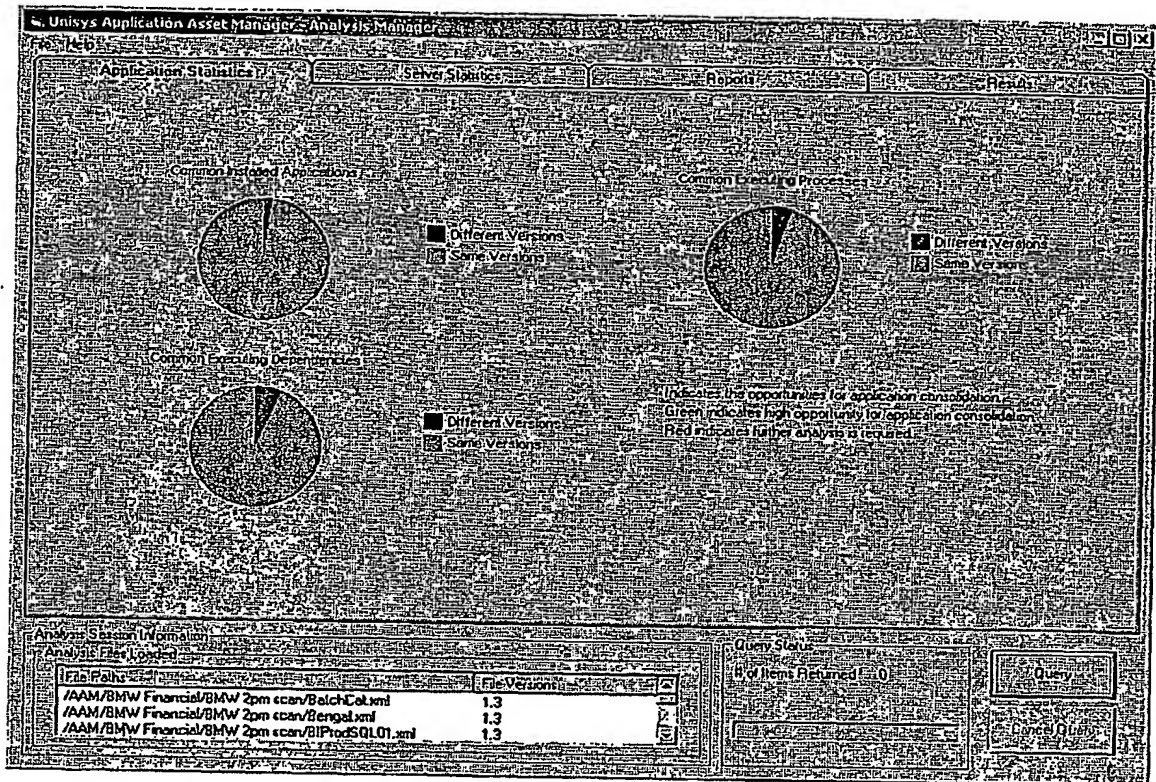
The Asset Management capabilities in the AAM Analysis Manager include:

- Ability to list, compare, contrast, and associate discovered data including system hardware and software configurations, applications/databases (installed and executing), executing application dependencies, and relationships of dependencies.
- Ability to associate executing components with any Microsoft products and product versions

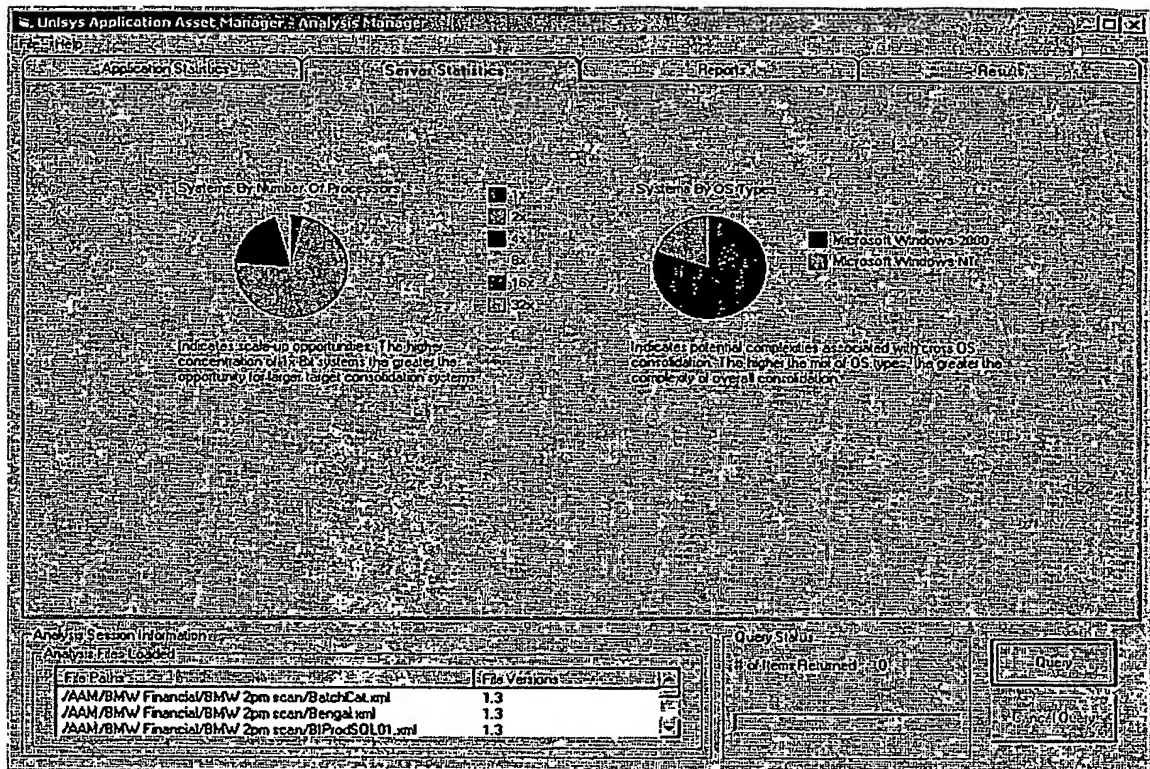
The Consolidation capabilities include all the capabilities included in the Asset Management Analysis as well as the ability to:

- Identify common applications and databases based on names, versions and timestamps.
- Identify opportunities for consolidation success based on OS types in the server farm
- Identify opportunities for scale-up systems based on number of processors in the server farm
- Ability to determine application/database best fit analysis based on target system average CPU utilizations.
- Ability to highlight compatibility issues based on applications running on the target vs proposed applications to be migrated to the target

Application and System Analysis



This screen is part of the Consolidation Plug-in. The Analysis Manager provides one-button analysis relative to common applications, common executing processes and common executing dependencies. The user can visually determine the degree of difficulty to consolidate those applications executing on those servers selected for analysis.



This screen is part of the Consolidation Plug-in. The Analysis Manager provides one-button analysis relative to Systems by Number of Processors and Systems by OS Type. System's by Number of Processors indicates scale-up opportunities while Systems by OS Types indicates potential complexities associated with cross OS application consolidation.

Unisys Application Asset Manager - Analysis Manager

Application Statistics Server Statistics Reports Analysis

Application Analysis (Consolidation Opportunities)

☐ None ☐ Common Applications ☐ Common Processes ☐ Common Dependencies ☐ Common Processes & Associated Dependencies

☐ None ☐ By Same Versions ☐ By Different Versions ☐ By Same Operating Systems ☐ By Different Operating Systems

Application Analysis (AMD/Ident/Disposal)

☐ None ☐ All Related Applications ☐ Different Applications ☐ Different Processes ☐ Different Dependencies

☐ All Related Processes ☐ Distinct Applications ☐ Distinct Processes ☐ Distinct Dependencies

Hardware/OS/Analysis

☐ None ☐ Processor ☐ Operating System ☐ Drives

☒ Display or an SQL Query

SQL Query (Columns can be extended WHERE condition may be extended as necessary)

```

select pe_appcatalogitem_appname, pe_sysinfo_systemname, pe_appcatalogitem_appversion from pe_sysinfo, pe_appcatalogitem p Where
p.pe_appcatalogitem_folderpath in (select folderPath from filesTable where p.pe_appcatalogitem_fileVer = fileVer) And p.pe_appcatalogitem_appname in (select
pe_appcatalogitem_appname from pe_appcatalogitem pp where pp.pe_appcatalogitem_folderpath in (select folderPath from filesTable where
pp.pe_appcatalogitem_fileVer = fileVer) group by pe_appcatalogitem_appname having count(pe_appcatalogitem_appname) > 1) And
(pe_appcatalogitem_parent_id = pe_sysinfo_id) And (pe_sysinfo_folderpath = pe_appcatalogitem_folderpath) AND (pe_sysinfo_fileVer = pe_appcatalogitem_fileVer)
  
```

Analysis Session Information

Analysis File Loaded

File Paths	File Versions
/AAM/BMW Financial/BMW 2pm scan/BatchCat.xml	1.3
/AAM/BMW Financial/BMW 2pm scan/Bengel.xml	1.3
/AAM/BMW Financial/BMW 2pm scan/BIFTopSQL01.xml	1.3

Query Status

18 of 18 items returned - 324

Query Cancel Query

In addition to one button analysis, the user has the ability to generate reports highlighting application consolidation opportunities based upon the inventoried information currently under analysis.

In addition, any of the 150 discovered data points can be referenced through user defined SQL queries to generate reports as needed for their specific needs.

SQL Server Database Analysis

The SQL Server Database analysis assists users in identifying the best consolidation candidates and possible consolidation groupings relative to SQL Server. It also identifies potential conflicts e.g. incompatible user privileges on different servers

A set of standard reports is provided for SQL Server consolidation analysis. Additional reports can be constructed either via the query window or via the Analysis Managers SQL based capability for custom queries as required.

The standard set of reports include:

Instances

Provides a quick view of the total number of SQL server instances broken down by version information.

- Sp_configure**
Shows noni-default configuration parameters by server.
- Unique DBs**
Lists the unique database names in the server population and gives a count and the name of the servers hosting the database.
- Database sizes**
Shows the amount of space actually being used by each database.
- Collation**
Indicates the sort order and code pages being used by each SQL instance.
- Logins**
Details the unique login names in the server population.
- Default DB Conflict**
Lists those users who have logins on more than one server but assigned with a different default database.
- Server roles**
Shows the different server roles that may have been assigned to a login.
- Server role Conflicts**
Shows identical logins on multiple servers but with different server roles.
- Servers**
Operating system and version, hardware vendor, processor speed, number of processors, memory size, etc.
- Disk Storage**
Totals of space used and free for each logical drive
- SQL Configuration**
Highlights non-default sp_configure settings
- Databases**
Reports the databases resident on that server, details of database and log space used, status, etc.
- Highlight of potential consolidation conflicts**
E.g. Server roles, Database roles, default databases
- SQL Jobs and Tasks**
List and highlight duplication.
- SQL Alerts**
List and highlight duplication
- SQL Operators**
List and highlight duplication
- DTS Packages**
List and highlight duplication
- Replication**
Indicates those databases where replication is allowed
- User Stored Procedures in the Master Database**

Unsys Application Asset Manager - Analysis Manager

Application Statistics | Server Statistics | Reports

Filter: Consolidation Candidates | Common Installed Applications

per application name	per system name	per application version	Results
ARCserve 2000	LAVRES	7.0.1220.0	
ARCserve 2000	FSFILE1	7.0.1220.0	
BMC Software	KOMODO		
BMC Software	TEGU		
CenterStage Prospero 4.1	STIMPY		
CenterStage Prospero 4.1	REN		
Client Agent for Windows NT and 2000	80A	7.0.1220.0	
Client Agent for Windows NT and 2000	RAFIKI	7.0.1220.0	
Client Agent for Windows NT and 2000	JAGUARUNDI	7.0.1220.0	
Client Agent for Windows NT and 2000	PARROT	7.0.1220.0	
Client Agent for Windows NT and 2000	LYNX2	7.0.1220.0	
Client Agent for Windows NT and 2000	MAMBA	7.0.1220.0	
Client Agent for Windows NT and 2000	BOBCAT	7.0.1220.0	
Compaq Integration Maintenance Utilities	CHEETAH		
Compaq Integration Maintenance Utilities	MAMBA		
Compaq Integration Maintenance Utilities	PARROT		
Compaq Integration Maintenance Utilities	LYNX2		
Compaq Integration Maintenance Utilities	BOBCAT		
Compaq Management Agents	REN		
Compaq Management Agents	PANDOPTICON		
Compaq Management Agents	SARUMAN		
Compaq Management Agents	STIMPY		
Compaq Management Agents	CHEETAH		
Compaq Management Agents	FSFILE2		
Compaq Management Agents	FSFILE1		
Compaq Management Agents	JAGUARUNDI		
Compaq Management Agents	BOBCAT		
Compaq Management Agents	GARINATE		

Analysis Session Information

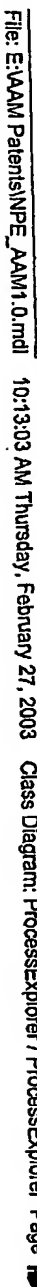
Analysis Files Loaded

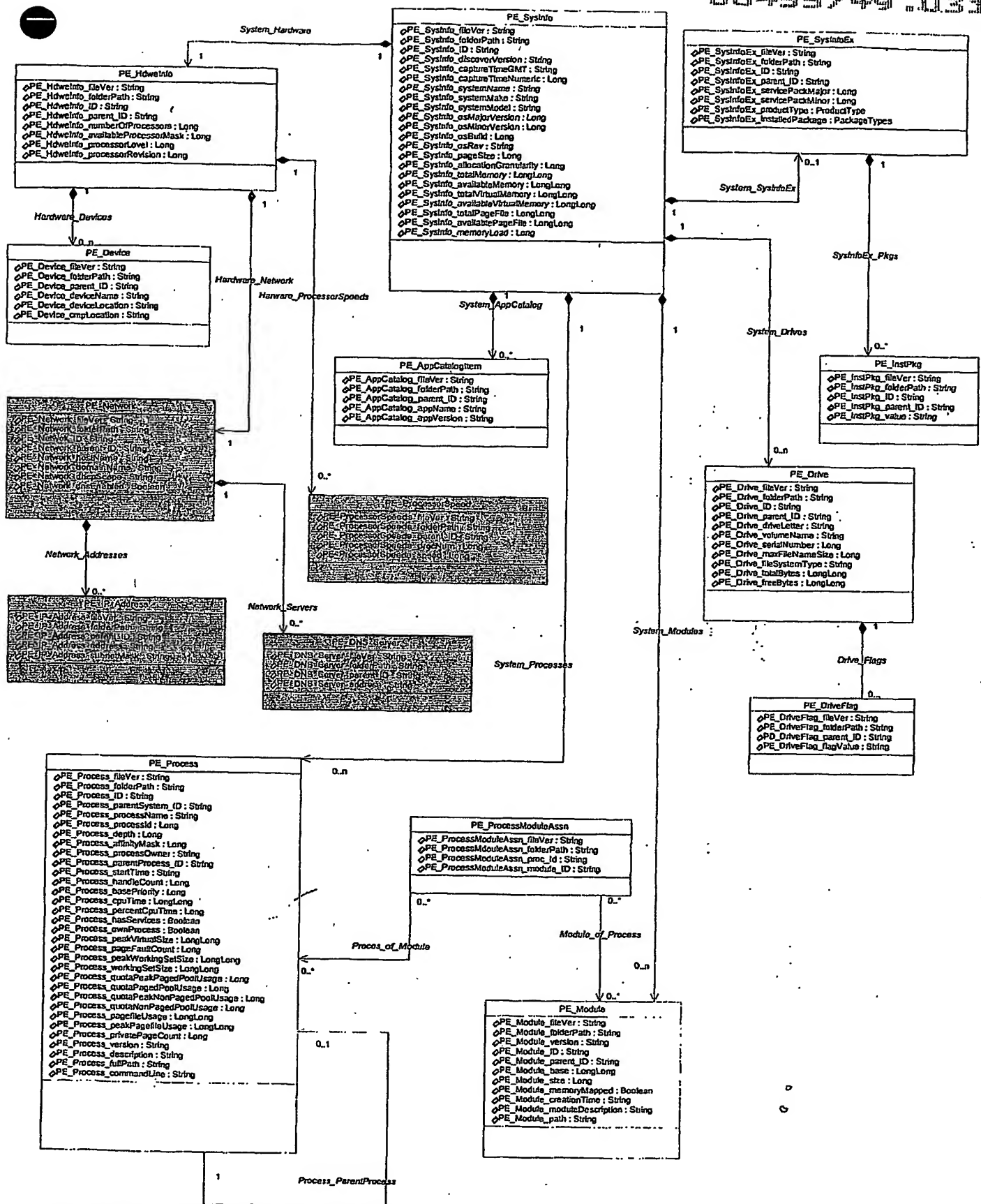
File Path	File Version
/AAM/BMW Financial/BMW 2pm scan/BatchCol.xml	1.3
/AAM/BMW Financial/BMW 2pm scan/Bengal.xml	1.3
/AAM/BMW Financial/BMW 2pm scan/BIProdSOL01.xml	1.3

Query Status

9 of Items Returned: 324

All results are presented in the Analysis Manager result pane. Returned results can be sorted by column as necessary and saved to disk for import into 3rd party reporting tools such as Microsoft Excel.





SystemFlow Resource Kit

Application Asset Manager

Application Asset Manager - Overview Topics

Application Asset Manager and Server Consolidation

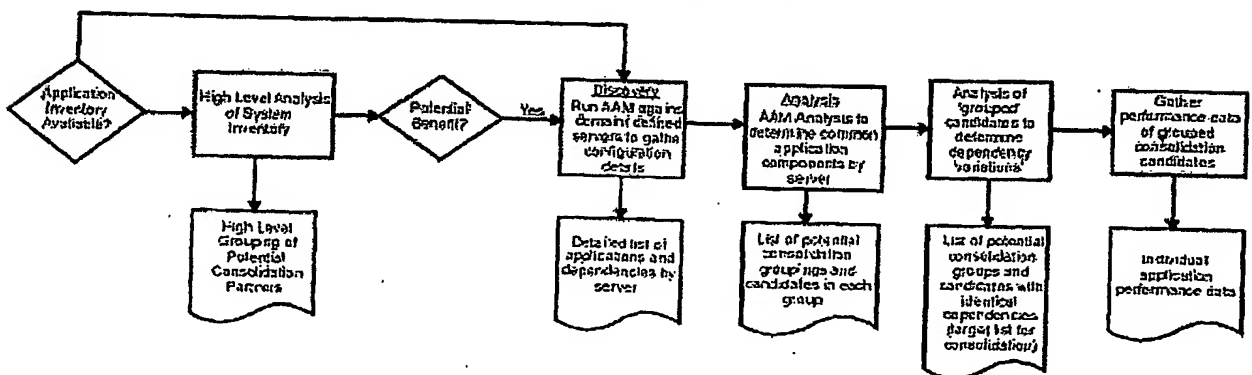
Many IT organizations are looking to consolidate applications, databases, and systems to capitalize on the increased performance available on multiprocessor servers and to reduce the costs associated with support and administration of large server farms. To evaluate the potential benefits of server consolidation, IT organizations must first profile the applications running on their distributed systems.

The Application Asset Manager has discovery and analysis tools dedicated to profiling applications. These tools reside on and operate from your notebook computer, which is connected to the customer's network during the discovery phase of application profiling. The discovery agent is a non-resident agent deployed to each remote system in the server farm, either in real time or on a scheduled basis, to discover system and process information.

The agent gathers information about the system, the applications running on the system, and any associated dependencies. The information is returned to the Application Asset Manager database on your notebook computer, and the agent and connection are terminated. When discovery is completed on all remote systems, you can disconnect your notebook computer from the customer's network.

The analysis tool then evaluates the information from all profiled servers to reveal the potential consolidation candidates and any possible consolidation conflicts. The results of the analysis can be presented to the customer in various standard report formats.

These Application Asset Manager tools also can be used to monitor the run-time applications in an organization's server farm on an ongoing basis, ensuring that all application components are running at the proper revision levels and that system resources are being used effectively.



Server Consolidation Features

The graphical user interface (GUI) of the Application Asset Manager is integrated with Microsoft Windows Explorer. The familiarity of the two-pane interface with a tree view presentation greatly enhances the ease-of-use of this tool. The menu items function similarly to the menu items found in Windows Explorer, with two important additions: the Server Consolidation Tools and AAM menu items. Their drop-down menus help you easily find the functions you need. The Server Consolidation Tools drop-down menu specifically lists the tasks you need for performing server consolidation.

In addition, two wizards help you configure the Application Asset Manager and perform the subsequent application profiling process. The Configuration wizard helps you configure the Application Asset Manager database to support application profiling, and the Discovery wizard automates the capture of your customer's run-time assets, eliminating the expense and drudgery of discovering these assets machine by machine, a manual process that can take days or weeks. When the discovery process is complete, the remote agents launched into the network terminate, leaving no trace on your customer's system.

Server Consolidation Benefits

Some of the benefits to using the Application Asset Manager for server consolidation are as follows:

- You can quickly profile applications and perform unlimited queries on captured server assets using the discovery and analysis tools.
- Thorough, detailed analysis reports are based on a discovery process that is tailored to your customer's requirements.
- Analysis reports enable you and your customer to easily determine whether server consolidation is feasible.
- If server consolidation is feasible, customers can reduce costs by achieving effective system utilization through application consolidation or load balancing.
- Customers can increase application performance and reduce the chance of application failures by ensuring all components within their systems are at the proper version levels.
- Customers can inventory and monitor applications and system performance thresholds over defined periods of time for workload analysis and sizing.
- Customers can reduce administrative costs associated with enterprise-class applications.

Discovery Overview

Discovery is the process of harvesting system information and information about running processes on specified servers located in a server farm, and storing the information in the Application Asset Manager database. You can run the discovery operation on any predefined project or folder.

The discovery operation requires you to complete the following tasks:

- Enable the server consolidation tools option
- Create a project or folder in which to place discovered assets.
- Define properties for the project or folder, including configuration of the discovery execution sequence.
- Initiate the discovery process.

The discovery operation requires the customer to make available an existing user ID and password or create a new user ID and password for the servers you are targeting for discovery. The user ID must have

administrator privileges and can be removed from the systems as soon as you have completed the discovery task. As the discovery operation finishes on each target server, the agent is removed from the server and the link to the server from your laptop is terminated. In summary, no trace of the discovery operation will remain in the customer's system.

Note: The administrator privileges must include the rights to debug programs and to load and unload device drivers. These rights must be part of your rights as an administrator on the targeted servers and you must have both of these rights.

Once you have enabled the server consolidation tools option and created a project or folder, you can use the Discovery wizard to define the servers whose assets you want to harvest. The Discovery tool launches a remote agent into each designated system to capture information about all of the applications and processes running in that system. The agent writes the captured information back to your notebook computer as an XML file, where it is stored in the Application Asset Manager database. As previously stated, the remote agent is removed from the target server, leaving no trace on your customer's system.

Multiple discoveries can be done by scheduling discovery at specific time intervals to capture those applications or processes that run only at a particular time. You can also run the discovery operation again manually. Each time you repeat the discovery operation, you create a new revision of the server XML file. All revisions are stored and available in the version history of the Application Asset Manager project or folder container.

Types of Discovery Information

The types of information discovered include hardware information, such as

- Number of processors on a given system
- Available processors on a given system
- Processor level and revision

System information discovered includes the following:

- System name
- Page size
- Operating system version
- Operating system build

Process and dependency information discovered includes

- Active processes and their associated dependencies (both component and configuration)
- Processor usage at both the system and the process level
- Memory usage at both the system and the process level
- Process creation time
- Process ID
- Process owner
- Process handles
- Process and dependency versions and timestamps

- Process and dependency descriptions

Analysis Overview

The Analysis tool interprets and generates reports from the information obtained during the discovery process. You can open any of the discovery files, including revisions of each file. Thus, you can tailor the analysis process to focus on any subset of discovered server assets. Once you have opened the set of discovery files, the Analysis tool summarizes the number of systems and processes being analyzed.

The Analysis tool generates reports that highlight opportunities for application consolidation and application coexistence. For example, the Common Processes report lists the processes running on two or more systems within the server farm. Applications associated with common processes are consolidation candidates. The Analysis tool provides custom report output, sorted in any manner, on any stored attribute.

You can produce customized reports based on queries of any of the following data elements:

Hardware Information

- Number of processors on a given system
- Available processors on a given system
- Processor level and revision
- Devices on a PCI bus
- Non-network disk drives on a system and characteristics of the drives

System Information

- System name
- Operating system version
- Operating system build
- Total and available memory

Applications

- Application name
- Application version

Processes

- Process name and process ID
- Process owner
- Process dependencies
- Process and dependency descriptions
- Process and dependency versions and timestamps
- Actual memory and virtual memory
- Memory paging
- Processor usage
- Actual CPU time
- Number of handles open on a process

For more data elements, refer to the lists of discovered information in the [Discovery Overview](#) as well as the Application Asset Manager help.

Summary

Thus, with the Application Asset Manager on your computer, you can walk into a customer site, connect your notebook to the customer's network, and immediately go to work. Having already defined the Application Asset Manager database parameters using the Configuration wizard, you can quickly define the discovery parameters using the Discovery wizard and initiate the discovery process.

The discovery agents are launched immediately into the part of the customer's network that you previously defined. Within minutes the agents return their data to your computer, where it is then stored in the database. No trace of the agents or the discovery operation is left in your customer's system.

- You can run the Analysis tool immediately, or you can choose to run the tool later. Once you have completed the analysis process, you can generate various reports and deliver them to your customer within hours. It's that straightforward!

Application Asset Manager Online Seminars

The Application Asset Online Seminars provide a high-level overview of server consolidation and asset management through the Application Asset Manager interface. Please note that these seminars are Unisys Confidential.

View the previous seminar on [managing assets](#) using Application Asset Manager (March 2002). If your system does not support streaming video, you can [download the presentation](#) (19 MB).

View the new seminar on [server consolidation](#) using Application Asset Manager. If your system does not support streaming video, you can [download the presentation](#) (20 MB), or the [demonstration](#) (12 MB) of the Application Asset Manager interface.

Application Asset Manager - Installation & Configuration

Pre-installation Requirements

Before installing the Application Asset Manager, ensure that your notebook computer meets the following minimum requirements:

- Intel Pentium II processor or compatible processor (at least 300 MHz)
- Microsoft Windows 2000 operating system
- At least 192 megabytes (MB) of RAM
- At least 700 MB of free disk space
- Total page file size of at least 500 MB

You must complete several installation tasks before running the Configuration wizard. Refer to [Installation and Configuration Tasks](#) for instructions.

Installation and Configuration Tasks for Application Asset Manager

Complete the following tasks before using the Application Asset Manager.

Login User Account

If you are installing the Application Asset Manager on a notebook computer that might be profiling servers on networks other than the one you normally log in to, you must install under a local user account with complete administrator privileges. Use this same local account for configuring the Application Asset Manager database. If you are on a workstation that will not be moved among domains, you can use your normal login account for installing the Application Asset Manager.

Setting User Account Privileges for Configuration

To run the Application Asset Manager Configuration wizard on a system running Windows 2000, you must be an administrator on that system with specific user rights.

Required user rights depend on whether your Windows logon user ID and Application Asset Manager configuration user ID are the same or different.

If you are configuring the Application Asset Manager with the same user ID under which you are currently logged in to Windows, then

1. The user must be a member of the Administrators group.
2. The Administrators group or the user must have the following privileges:
 - a. Act as part of the operating system
 - b. Log on as a service

If you are configuring the Application Asset Manager with a user ID (e.g., "AAMUser") that is different than the user ID under which you are currently logged into Windows (e.g., "WinUser"), then

1. "AAMUser" and "WinUser" must be members of the Administrators group.
2. The Administrators group or "AAMUser" must have the privilege to "Log on as a service".
3. The Administrators group or "WinUser" must have the following privileges:
 - a. Act as part of the operating system
 - b. Create a token object
 - c. Increase quotas
 - d. Replace a process level token


To verify that a user account has the correct user rights, perform the following steps:

1. From the Control Panel, click **Administrative Tools**.
The Administrative Tools window appears.
2. Select **Local Security Policy**.
The Local Security Settings window appears.
3. In the left pane of the Local Security Settings window, expand the **Local Policies** folder.
A User Rights Assignment folder appears in the left pane.

4. Click the **User Rights Assignment** folder.
A list of user rights appears in the right pane.
5. In the right pane, find a user right, such as, "Act as part of the operating system" (in the Policy column).
6. Examine the **Effective Setting** column to ensure you have this right.
7. Repeat steps 5 and 6 for all user rights required for each account.

For each required right, such as "Act as part of the operating system", that is missing from a user account or user group, perform the following steps.

1. Double-click **Act as part of the operating system** in the right pane of the Local Security Settings window.
2. Click **Add** in the Local Security Policy Setting dialog box.
3. In the **Select Users or Groups** dialog box, find or type your user account or user group, and then choose **OK**.

 **Note:** If a user account or user group appears in the Local Setting column but not in the Effective Setting column, you need to log out of the Windows environment and log in again to make this setting effective.

4. Close the Local Security Settings window and the Administrative Tools window.

Using the Configuration Wizard

Once you have installed the Application Asset Manager, use the Configuration wizard to configure the Application Asset Manager database before performing any server consolidation tasks.

You can access the Configuration wizard through the Start menu. Point to Programs, Unisys, Application Asset Manager, and then choose Configure. The wizard includes online help, which has step-by-step procedures for all of the server consolidation tasks.

To size the Application Asset Manager database for server consolidation using the Configuration wizard, you must estimate how many servers you will be discovering before you begin. Each discovered server results in a new file in the Application Asset Manager database.

The default database size is 10,000 files, folders, and projects. This is equal to the discovery of about 10,000 servers. The maximum size is 1,000,000 items, and the minimum size is 1,000. The default database size is sufficient if the number of servers you are discovering is less than 10,000. If you are discovering a small number of servers, you can reduce the database size to the minimum size. The Configuration wizard will not allow you to create a database smaller than 1,000 files, folders, and projects.

 **Note:** Once the wizard begins configuring the Application Asset Manager, it can take 15 to 30 minutes to complete the database configuration.

Download the Application Asset Manager: IC4

Download the Application Asset Manager here and check out its features and capabilities. We also would like you to send us your feedback. The download is not password-protected, but this form helps us track who is using the Application Asset Manager. Thus, we can notify you about upgrades, support issues, and fixes.

First, fill out this brief registration form. Asterisked items are required fields.

System Requirements

- Microsoft Windows 2000 operating system
- Intel Pentium II processor or compatible processor (at least 300 MHz)
- At least 192 megabytes (MB) of RAM
- At least 700 MB of free disk space
- Total page file size of at least 500 MB

Login User Account

If you are installing the Application Asset Manager on a notebook computer that might be profiling servers on networks other than the one you normally log in to, you must install under a local user account with complete administrator privileges, which includes the right to act as part of the operating system.

Use this same local account for configuring the Application Asset Manager database. If you are on a workstation that will not be moved among domains, you can use your normal login account for installing the Application Asset Manager.

Installation

Download the file "AAMSetup.exe" (28 MB) to a local directory. This file contains the installation package. Execute the file "AAMSetup.exe"; this execution extracts the files needed for the installation. You will be queried only for the location where you want the Application Asset Manager installed.

Upon completion of Application Asset Manager installation and database

Release Notes for Application Asset Manager 1.1, IC 4

These release notes are for the Application Asset Manager 1.1 Interim Correction (IC) 4 and replace the previous version of the release notes.

Installing the IC

To update the Application Asset Manager 1.1 to IC4, complete the following steps:

1. Download the file AAMSetup.exe.
 2. To install, double click AAMSetup.exe or run the installation from a command window.
- If the Application Asset Manager is not installed, the installer will guide you through the setup process.
 - If a previous version of Application Asset Manager 1.1 is installed, you are asked if you want to update to Application Asset Manager 1.1 IC 4. Select Yes to continue with the installation.

- If Application Asset Manager 1.1 IC 4 is already installed, you are asked if you want to repair or remove. Select Repair to recover missing files in the current installation. To completely replace the current installation, select Remove. When the uninstallation is finished, reinstall Application Asset Manager 1.1 IC 4.

Changing Your Password

If you change the password for the Windows account used to install and configure the Application Asset Manager, you must reconfigure the OsmosGriffin service and the UrepInetd service to allow the database services to run. However, you must continue to use the original password to login to the Application Asset Manager database unless you change the login password using the Application Asset Manager Administrative Tools utility.

Changing Your UrepInetd Password

Perform the following steps to change your password in the UrepInetd service:

1. Right click My Computer and select Manage from the shortcut menu.

The Computer Management dialog box appears.

2. In the left-hand pane of the Computer Management dialog box, expand Services and Applications, and double click Services.

The list of services appears in the right-hand pane of the Computer Management dialog box.

3. Right click UrepInetd service in the right-hand pane and choose Stop.
4. From the Start menu, point to Programs, Unisys, Application Asset Manager, and then choose InetdConfig.
5. Ensure your current account name and domain are prefilled. If they are not prefilled, type them in.
6. Type your new Windows password in the Password field.
7. Choose OK.

Your password is changed.

8. In the Computer Management dialog box, right click the UrepInetd service again and choose Start.
9. Close the Computer Management dialog box.

Changing Your OsmosGriffin Password

Perform the following steps to change your OsmosGriffin Password:

1. Right click My Computer and select Manage from the shortcut menu.

The Computer Management dialog box appears.

2. In the left-hand pane of the Computer Management dialog box, expand Services and Applications, and double click Services.

The list of services appears in the right-hand pane of the Computer Management dialog box.

3. Right click OsmosGriffin service in the right-hand pane and choose Stop.
4. After the service stops, right click the OsmosGriffin service and choose Properties.

The OsmosGriffin Service Properties dialog box appears.

5. Select the Log On tab in the OsmosGriffin Service Properties dialog box.
6. Type the new password twice and choose OK.
7. In the Computer Management dialog box, right click the OsmosGriffin service again and choose Start.
8. Close the Computer Management dialog box.

New Features: IC 4

Analysis

- The analysis database has been restructured to significantly enhance performance of the Common Process and Associated Dependencies report.
- Revised column ordering in five reports now removes inconsistencies in the presentation of the result sets, making the analyses easier to understand and to share with clients. Similar reports, such as Different Applications, Different Processes, and Different Dependencies, now share a common results format.
- Filter options for the Common Process and Associated Dependencies report have been relabeled to remove ambiguity about whether they apply to the process or to its dependencies. The labels now clearly state that the filters apply to dependencies.

New Features: IC 3

General

- By default, Discovery, Analysis Database Loader, and Analysis now use a temporary directory instead of a working path when moving data between the file system and the Application Asset Manager database. You are no longer required to set a working path when you create a project. The temporary directory is deleted when each operation is complete. You still have the option of using a working path if you wish. See the Application Asset Manager Help file for details.
- A project is now specialized for server consolidation through a single, high-level setting – the Server Consolidation Tools option under the AAM | Options menu. Application Asset Manager folders are specialized for server consolidation in the same manner.

The term "Server Consolidation Project" has been removed from the File | New menu and from the New context menu in the right-hand pane of Windows Explorer. See the Help file for details on creating projects and folders for server consolidation.

Discovery

- The process discovery agent sends a heartbeat to the consultant's notebook computer informing psexec.exe that all is well. If PsExec does not detect a heartbeat for a period of 60 seconds, it terminates the agent and logs an error message.
- If the network connection to the remote host is lost and the discovery operation cannot be terminated normally, the service on the remote host terminates itself 30 seconds after the process discovery agent is terminated. See New Features: IC 2, below, for a description of process discovery agent self-termination.
- If NT Terminal Services is detected on a remote host, discovery skips that server and proceeds to the next. A log entry tells you why the server was bypassed.
- Discovery XML files are now verified for completeness. Both successful and unsuccessful verification results are sent to the log. Discovery files that fail the validation test are deleted.
- Discovery log error messages have been upgraded. They are now more complete and informative.

Analysis

- The Common Processes and Associated Dependencies report has been modified to be more simple and efficient. Rather than querying all dependencies on all processes, the report now queries all dependencies on a single process. Because you are required to enter the process name when you run the report, you should first run the Common Processes report to generate a list of process names.
- Installation of IC 3 does not require you to rediscover systems previously discovered. However, **discovery data (XML files) from previous versions of Application Asset Manager must be reloaded into the analysis database.** When you reload the analysis database, the old database is backed up as <AAM installation directory>\AAM\Db\Analysis.mdb.old, and a new IC 3 analysis database is created automatically. A message about the database change is reported on screen and posted to the file loadXML.log.

New Features: IC 2

Discovery

- The process discovery agent will now timeout and remove itself from the remote system after 30 minutes. Typically, the discovery agent will complete its task and remove itself in less than five minutes. However, there have been instances where the process discovery agent looped due to network errors. The timeout ensures that the process discovery agent will not persist on the remote system under any circumstances.

Discovery

- The process discovery agent sends a heartbeat to the consultant's notebook computer informing psexec.exe that all is well. If PsExec does not detect a heartbeat for a period of 60 seconds, it terminates the agent and logs an error message.
- If the network connection to the remote host is lost and the discovery operation cannot be terminated normally, the service on the remote host terminates itself 30 seconds after the process discovery agent is terminated. See New Features: IC 2, below, for a description of process discovery agent self-termination.
- If NT Terminal Services is detected on a remote host, discovery skips that server and proceeds to the next. A log entry tells you why the server was bypassed.
- Discovery XML files are now verified for completeness. Both successful and unsuccessful verification results are sent to the log. Discovery files that fail the validation test are deleted.
- Discovery log error messages have been upgraded. They are now more complete and informative.

Analysis

- The Common Processes and Associated Dependencies report has been modified to be more simple and efficient. Rather than querying all dependencies on all processes, the report now queries all dependencies on a single process. Because you are required to enter the process name when you run the report, you should first run the Common Processes report to generate a list of process names.
- Installation of IC 3 does not require you to rediscover systems previously discovered. However, **discovery data (XML files) from previous versions of Application Asset Manager must be reloaded into the analysis database.** When you reload the analysis database, the old database is backed up as <AAM installation directory>\AAMDBs\Analysis.mdb.old, and a new IC 3 analysis database is created automatically. A message about the database change is reported on screen and posted to the file loadXML.log.

New Features: IC 2

Discovery

- The process discovery agent will now timeout and remove itself from the remote system after 30 minutes. Typically, the discovery agent will complete its task and remove itself in less than five minutes. However, there have been instances where the process discovery agent looped due to network errors. The timeout ensures that the process discovery agent will not persist on the remote system under any circumstances.

Analysis

- New, more efficient SQL queries have been implemented in order to reduce query complexity and to improve query performance when analyzing a large number of systems.

Installation of IC 2 does not require you to rediscover systems previously discovered. However, previously discovered data (XML files) must be reloaded into the analysis database.

Fixed Problems

- Choosing the Cancel button during discovery does not terminate the discovery operation.

Resolution: The Cancel button now terminates the remote process and the discovery operation stops. A log entry cites the reason for the user-initiated termination.

- Analysis compares dependencies using timestamps instead of version strings, even though "Same Versions" or "Different Versions" was selected in the Analysis window.

Resolution: New buttons have been added to the Analysis window so that users can specify whether to compare dependencies by timestamps or version strings.

- Discovering servers more than once causes an Access Denied error.

Resolution: The default options for deployment and discovery no longer change the attributes of the files written to or read from the working path to read only.

- Loading or analyzing a discovery file contained in a project or folder whose name contains an apostrophe causes a run-time error.

Resolution: Apostrophes can now be used in project or folder names.

- Simultaneous discovery of a single host leaves the service psexesvc.exe executable installed and running on the remote host.

Resolution: The service is now removed automatically when the discovery has been completed. If the service is ever left behind, it can be removed manually from a command window by using the following commands:

```
psexesvc -remove
```

```
del psexesvc.exe
```

- Choosing the Differences button on the Checkin dialog box causes a run-time error.

Resolution: The differences are now calculated and displayed correctly.

- Configuring the Application Asset Manager on a computer that has an FTP service installed other than Microsoft Windows Internet Information Services (IIS) and Microsoft Windows File Transfer Protocol (FTP) server causes a warning message during the configuration that claims FTP is not installed.

Resolution: The warning message is now changed to indicate that Windows IIS and Windows FTP server are required on an Application Asset Manager server if the database is to be accessed from a remote client computer.

- When a CSV file is modified in the Discovery Wizard by removing one or more host list entries, the change is not saved to file.

Resolution: Changes due to removal of listed hosts are now saved to file.

- When attempting to analyze more than about 20 files, the Analysis Manager fails to open, giving the error: "Expression too complex in query expression."

Resolution: You can now analyze all files in the analysis database.

- Loading or analyzing a large number of discovery files may cause a runtime error.

Resolution: Databases created after IC 2 is installed are able to load as many files as will fit into the database. For databases created prior to IC 2, please see the workaround for the last item in the Known Problems list, below.

- Captured discovery files fail to load into the analysis database if they were previously loaded into the analysis database and then either renamed or copied to another name in another folder in the Application Asset Manager database.

Resolution: In the Application Asset Manager database you can now copy discovery files to another project or rename them, and then load them successfully into the analysis database.

- Analyzing a discovery file contained in a project whose name contains a space causes a run-time error.

Resolution: You can now analyze files within projects whose names contain spaces.

- In the Discovery Wizard Advanced Discovery Options dialog box, choosing the Options button again while a Discovery Options (Process Discovery) dialog box is already displayed causes the Explorer to enter an infinite loop.

Resolution: You can now choose the Options button while the Discovery Options dialog box is open without causing a problem.

- In the Analysis Manager, the Common Process and Associated Dependencies report returns incorrect results.

Resolution: The Common Process and Associated Dependencies report now returns correct results.

Known Problems

The following are known problems with the Application Asset Manager 1.1:

- When a container is selected in the left pane of Explorer and that container has the same name as the currently selected container, the right pane of Explorer is not refreshed.

Workaround: Select a container with a different name in the left pane and then select the desired container.

- When Analysis starts, the window is too small to show all of the controls.

Workaround: Manually resize or maximize the Analysis window. If this does not work, change your screen resolution to 1024 x 768 with small fonts.

- The first column in the Results tab in the Analysis window can be edited.

Workaround: Select the Reports tab and choose Query. Return to the Results tab and the results will be refreshed.

- Discovery does not run on a virtual SQL server.

Workaround: None.

- Loading or analyzing a large number of discovery files may cause a runtime error.

Workaround: To fix this problem complete the steps below on each project where the runtime error occurs.

- 1) Select the project in either the left- or right-hand pane of Windows Explorer.
- 2) Right click and select Server Consolidation Tools, Analysis Database Loader, and Advanced Properties from the popup menus.

The Properties dialog appears with the Deployment tab on top.

- 3) Select Load in the list control labeled "Execution Sequence for Analysis Database Loader".
- 4) Choose "Edit".

The Edit Application dialog appears.

- 5) Delete the text in the edit box labeled "Parameters" and replace it with the text on the following line:

-f "__loadFilePath__"

Note: There is a blank character after "-f" and two underscore (" _ ") characters before and after "loadFilePath".

- 6) Choose OK on the Edit Application dialog box.
- 7) Choose OK on the Properties dialog box.

The Analysis Database Loader can now be used to load a large number of discovery files.

Note: To fix the same problem for Analysis perform steps 1 - 7 again but replace Analysis Database Loader in steps 2 and 3 with Process Analysis.

Release and Support Policy

Release Policy

The Application Asset Manager software is for use by Unisys personnel only, and is not intended for licensing to a customer at this time. Unisys personnel should not leave this software with customers under any conditions.

Support for Unisys Software Products

Unisys Engineering (Pacific Development Laboratory in Mission Viejo, CA) fully supports the Application Asset Manager software as if it were a major release. Users are to submit any problem reports, called User Communication Forms (UCFs), against the release, which is registered with Unisys Product Support system, identifier AAM.

Problem reports can be submitted through the Unisys Customer Support Centre (CSC).

Obtaining Fixes

Fixes to the software are available on the SystemFlow Web site in the form of Interim Corrections (ICs). An IC is a replacement module or modules that contain fixes for portions of a product or the replacement of an entire product.

By downloading any version of Application Asset Manager or an IC from SystemFlow, users are placed on a mailing list so they can be notified whenever a new IC is available

Application Asset Manager – Workflow

Overview of the Workflow for Server Consolidation

The workflow for server consolidation using the Application Asset Manager begins with the discovery process, which you perform once you are at a customer site. There are a number of tasks you must perform before beginning the discovery process. These tasks are as follows:

- Verify that your notebook computer meets the installation requirements.
- Download and install the Application Asset Manager.
- Run the Configuration wizard.

Application Asset Manager Explorer Shell

Because the Application Asset Manager is integrated with the Microsoft Windows Explorer, you can use the Explorer interface to browse and manipulate objects such as projects, folders and files stored in the Application Asset Manager database. This interface enables you to manage your project, configuration, and file archives, and to review archive history, revert to earlier versions, and develop projects concurrently.

The Application Asset Manager Explorer presents a hierarchy of objects in a tree view and a corresponding list of objects in the currently selected folder. You perform various operations such as discovery and analysis on the objects through the Server Consolidation Tools menu or through context menus.

Opening Application Asset Manager Explorer

To open the Application Asset Manager Explorer, double-click the Application Asset Manager icon on your desktop or use the Start menu and select Start, Programs, Unisys, Application Asset Manager, and then Explorer.

You can also right-mouse click the Application Asset Manager icon on your desktop and select Explore

Connecting to the Application Asset Manager Database

Before you can run the discovery and analysis tools, you must first connect to an Application Asset Manager database in Windows Explorer or log in to a database that has been connected previously. In subsequent sessions, you can simply log in to that database. To connect to a database, perform the following steps.

1. In the Explorer window, right-click Application Asset Manager in the left-hand pane.
2. Select Connect to a Database, and enter the host name of the machine, the database name, and your user ID and password.

Note: The user ID and password must be the same as the ones you entered in the Configuration wizard.

3. At the bottom of the Connect to a Database dialog box, there are two checkboxes: Remember Password, which saves your user ID and password, and Auto Login, which automatically logs you in with your user ID and password supplied and will skip this dialog box in future sessions.
4. Choose OK.

To login to a connected database, perform the following steps:

1. In the Explorer window, right-click a database listed under the Application Asset Manager icon in the left-hand pane.
2. Select Login, and the Login dialog box appears if Auto Login was not selected during a previous login.

The Login dialog box looks like the Connect to a Database dialog box, except that the host name and database name are read-only.

3. Enter your user ID and password as required. If you selected the Remember Password checkbox when you connected to the database initially, you should not have to enter any information.

Note: The user ID and password must be the same as the ones you entered in the Configuration wizard.

4. At the bottom of the Login dialog box, there are two checkboxes: Remember Password, which saves your user ID and password, and Auto Login, which automatically logs you in with your user ID and password supplied and will skip this dialog box in future sessions.
5. Choose OK.

Creating a Project

After logging in to the Application Asset Manager database, you must configure the Explorer shell by completing the following steps.

1. In the Explorer window, select the database, and choose *Options* from the AAM menu.

The Application Asset Manager Options dialog box appears.

2. Select the *General* tab.
3. Select *Server Consolidation Tools* from the Tools Menu list.

The Server Consolidation Tools menu item is added to the menu bar.

Next, you need to create a container to manage your discovered assets. This container is called a project. A single project might be sufficient for your discovery operation at a customer site. However, if the customer site is complex, you might want to create several folders under a parent project in the Application Asset Manager. You can create a project several ways.

1. You can use the Explorer menu bar to create a new project.

Select File, New, and then select Project. A new project folder appears in the right-hand pane.

2. Type a name for the project (for example, XYZBank) and press Enter.

You can also create a project by selecting the database in the left-hand pane and right clicking in the right-hand pane.

1. Select New, and then select Project.
2. Type a name for the project (for example, XYZBank) and press Enter.

Discovery

Discovery is the first stage in server consolidation using the Application Asset Manager. You must obtain a list of the systems you want to include as part of the discovery process, and have the customer provide an administrator user ID and password for those systems. Administrator privileges must include the right to:

- Debug programs
- Load and unload device drivers

In addition, each target server must have both the ADMIN\$ share and the IPC\$ share enabled.

Once you have this list of servers and access privileges, you can initiate the discovery process on those servers.

Note: Discovered systems can be any type of Windows 2000 server or NT 4.0, SP6 server. However, while Windows 2000 Terminal Server is supported; NT Terminal Server is not supported for discovery at this time.

Using the Discovery Wizard

The discovery wizard provides a graphical interface for configuring and running the discovery operation on remote servers and systems. It provides all of the required choices, including designating the target discovery systems and scheduling the discovery operation. Although you can configure and run the discovery operation using other methods, the wizard is recommended for all first-time users.

Selecting the Target Servers for Discovery

You can discover assets from one or many targeted servers in a single discovery operation. You can also choose to perform more than one discovery operation, each one targeting another set of servers. However, you must have access rights (as an administrator) to all of the servers targeted for discovery, and each server must have the ADMIN\$ share (Remote Admin) and the IPC\$ share (Remote IPC) set.

Note: The access rights must include the rights to debug programs and to load and unload device drivers. These rights must be part of your rights as an administrator on the targeted servers and you must have both of these rights.

Using the Discovery wizard, the following discovery options are available:

- Discovery by Host Name

This option enables you to select a single server for discovery. You must know the name of the host machine, and a user name and password with administrator privileges.

- Discovery by Host List

This option enables you to select a group of servers from a host list for discovery. If you do not have an existing host list, you can create one after you select this option. You must enter a user name and password with administrator privileges for each server in the list. The host list takes the form of a CSV (comma-separated values) file.

- **Note:** In a CSV file, any exotic characters (spaces or tabs) that exist between commas or at the end of a line are included as part of the string for that field. A password with an appended space character may not work as expected. The last field (password) can optionally be terminated with a comma character to explicitly delimit the field. Discovery by TCP/IP Subnet

This option enables you to select all servers within a specific TCP/IP subnet. You must enter the network subnet address and a user name and password with administrator privileges for all systems in the subnet.

- **Discovery by Site Name**

This option enables you to select all servers in a specific site. You must enter the site name and a user name and password with administrator privileges for all systems within the site.

- **Discovery by Domain Name**

This option enables you to select all servers in a domain. You must enter the domain name and a user name and password with administrator privileges for all systems within the domain.

After selecting one of the preceding options and providing the required information, you must save your settings. You can now run the discovery operation from the Advanced Discovery Options page in the wizard or run discovery from the Discover dialog box.

You can set additional discovery parameters before running the discovery operation. For example, you can change the default values in the Properties dialog box and the Discovery Options dialog box, and schedule the discovery task. Refer to the Application Asset Manager online help for instructions on how to perform any of these tasks.

Running the Discovery Operation

You can run Discovery by choosing the Run button from the final screen of the Discovery wizard. You can also run the discovery operation by performing the following steps:

1. Click Server Consolidation Tools in the menu bar.
2. Select Process Discovery from the dropdown menu and then select Discover. The Discover dialog box appears, allowing you to run the discovery operation.

Process Discovery: Technical Details

Note: The following information is Unisys Confidential. It must not be shared with clients under any circumstances.

Before you can run process discovery, you must configure it on your notebook computer using the Discovery Wizard or the Server Consolidation Project Properties dialog box. You can then launch discovery by choosing Run in the Wizard or choosing OK in the Discover dialog box. See the Application Asset Manager Help for details on configuring and launching discovery.

When you launch discovery, you run psexec.exe, a program that executes processes on remote systems without requiring you to install client software on those systems. When you configure discovery using the

Discovery Wizard and then look at the discovery properties, you can see the PsExec parameters. These parameters vary depending on the discovery scenario that you define, such as discovery of a single host, discovery using a host list, and discovery of all systems in a domain. The final argument in the parameter list is always the name of the agent or process that is run remotely. In this case, the agent is called procDiscovery, or process discovery.

PsExec and procDiscovery work together to perform discovery of applications, processes, process dependencies, and other information on remote systems as follows:

1. PsExec copies a service, psexesvc.exe, to the \$ADMIN share of the remote host, where it runs under the local system account.
2. Psexesvc then opens a named pipe and waits for incoming calls.
3. PsExec connects to Psexesvc and opens three additional named pipes.
4. Psexesvc connects to the three named pipes, to which it redirects stdin, stdout, and stderr for procDiscovery.
5. Psexesvc then creates a process for procDiscovery and waits for it to finish.

The ProcDiscovery agent is copied from the notebook computer to the remote host, where it resides temporarily on the \$ADMIN share. ProcDiscovery uses a device driver to capture information about running processes. The system creates a legacy registry key that is not under the control of procDiscovery.

ProcDiscovery impacts the host system only minimally – about two to 10 seconds of processor time and about 10 MB of memory usage while it captures information.

6. ProcDiscovery places its device driver in memory on the remote host.

ProcDiscovery makes a registry entry on the remote host only long enough to launch its device driver. The registry key is deleted as soon as the device driver is launched.
7. ProcDiscovery captures information from the host as specified in the discovery model.
8. ProcDiscovery writes the captured information to stdout, from which it is passed by PsExec to a local file on your notebook computer through the dedicated named pipe.
9. ProcDiscovery writes its errors to stderr. PsExec reads from stderr and writes to the display and to the log (PsExec<date>.log).
10. ProcDiscovery removes its device driver from host memory.
11. ProcDiscovery goes to normal end of job, and then reports "success" to PsExec.
12. PsExec and Psexesvc close the named pipes.
13. PsExec stops the service through the \$IPC remote share.
14. PsExec removes procdiscovery.exe and psexesvc.exe from the \$ADMIN\system32 directory.

The only trace remaining on the remote host is the procDiscovery registry key created by the host (HKLM\system\CurrentControlSet\Enum\Root\LEGACY_PROCEXP). This key might also

appear in the ControlSetXXX key tree.

- If procDiscovery does not reach the normal end of job after 30 minutes, the failsafe timer terminates the agent using a C "_exit" call. PsExec times out 30 seconds later and PsExec attempts to clean up normally. In this case, one additional trace is left on the host system:

The procDiscovery device driver, only 6Kbytes in size, remains in memory and is inaccessible. It has no effect on subsequent discovery attempts. The device driver is removed from memory the next time the system is restarted.

If PsExec terminates the process discovery agent abnormally, the net results are the same as when the agent is terminated by the failsafe timer.

Process Discovery Datapoints

The following table lists the complete set of datapoints collected through the discovery operation. While most datapoints reference features of the target system, some are internal to discovery itself. An example of the latter is the first datapoint – Unique file identifier. Symbols with no data type or sample data entry (grey field) represent organizing schema for the XML file. They are the classes of the Discovery Model.

Note: This table is Unisys Confidential. It must not be shared with clients under any circumstances.

Data Type	Symbol	Sample Data	Description
	PE_SysInfo		Information about the host operating system
Unique file identifier	PE_SysInfo_ID	2816CLAN3708-SI	Unique identifier for the PE_SysInfo XML element. A (statistically) unique identifier for the file itself.
Version of AAM Process Discovery	PE_SysInfo_discoverVersion	1.1.2	Version of procDiscovery used to gather this information.
System name	PE_SysInfo_systemName	USMV-SYS14TTP	Name of the discovered host system.
Operating system major version number	PE_SysInfo_osMajorVersion	5	Operating system major version number.
Operating system minor version number	PE_SysInfo_osMinorVersion	0	Operating system minor version number.
Operating system build number	PE_SysInfo_osBuild	2195	Operating system build number.
Operating system revision number	PE_SysInfo_osRev		Operating system revision number.
System page size	PE_SysInfo_pageSize	4096	Page size and the granularity of page protection and commitment, in

			bytes.
System allocation granularity	PE_SysInfo_allocationGranularity	65536	Granularity with which virtual memory is allocated, in bytes.
System total memory	PE_SysInfo_totalMemory	267964416	Total size of physical memory, in bytes.
System available memory	PE_SysInfo_availableMemory	188866560	Size of physical memory available, in bytes.
System total virtual memory	PE_SysInfo_totalVirtualMemory	2147352576	Total size of the user mode portion of the virtual address space of the calling process, in bytes.
System available virtual memory	PE_SysInfo_availableVirtualMemory	2147352576	Size of unreserved and uncommitted memory in the user mode portion of the virtual address space of the calling process, in bytes.
System total page file	PE_SysInfo_totalPageFile	1032663040	Total possible size, in bytes, of the paging file. Note that this number does not represent the actual physical size of the paging file on disk.
System available page file	PE_SysInfo_availablePageFile	853843968	Size of space available in the paging file, in bytes.
System memory load	PE_SysInfo_memoryLoad	29	NT 4.0: The percentage of approximately the last 1000 pages of physical memory in use. Windows 2000: The approximate percentage of total physical memory in use.
	PE_SysInfoEx		Additional information about the host operating system for Windows versions later than NT 4.0.
Element identifier	PE_SysInfoEx_ID	EI	XML identifier of this element.
Operating system major service pack	PE_SysInfoEx_servicePackMajor	0	Major service pack number for the host operating system.
Operating system minor service pack	PE_SysInfoEx_servicePackMinor	0	Minor service pack number for the host operating system.
System type	PE_SysInfoEx_productType	PROD_SERVER	Type of Windows 2000 system installed: PROD_WORKSTATION: Windows 2000 Professional PROD_DOMAIN_CONTROLLER: Used as a domain controller PROD_SERVER: One of the Windows 2000 server versions (see InstPkg)
	PE_InstPkg		Packages included with this type of Windows 2000.
Element identifier	PE_InstPkg_ID	IP_4	XML identifier of this element.

Package name	PE_InstPkg_value	PKG_TERMINAL	The name of one of the included packages. One or more of the following can be installed: PKG_SMALLBUSINESS: Windows Small Business Server. PKG_ADVANCED_SERVER: Windows Advanced Server. PKG_BACKOFFICE: Microsoft BackOffice components. PKG_COMMUNICATIONS: Windows Communications Server. PKG_TERMINAL: Terminal Services. PKG_SMALLBUSINESS_RESTRICTED: Microsoft Small Business Server. Restrictive client license in force. PKG_EMBEDDEDNT: (Unknown) PKG_DATACENTER: Windows 2000 DataCenter Server. PKG_SINGLEUSERTS: Single-user terminal services. PKG_PERSONAL: Windows version is Personal edition, not Professional PKG_BLADE: Blade server package.
	PE_HdweInfo		Information about the processors, devices and drives of the host system.
Element identifier	PE_HdweInfo_ID	HI	XML identifier of this element.
Number of processors	PE_HdweInfo_numberOfProcessors	1	Total number of processors on the host system.
Available processor mask	PE_HdweInfo_availableProcessorMask	1	Specifies a mask representing the set of processors configured into the system. Bit 0 is processor 0; bit 31 is processor 31.
Processor level	PE_HdweInfo_processorLevel	6	Processor model (Intel only): 3 -- 80386 4 -- 80485 5 -- Pentium 6 -- Pentium Pro or Pentium II
Processor revision	PE_HdweInfo_processorRevision	1282	Revision number of the processor.
	PE_Device		Information about devices on the host system PCI bus.
Device name	PE_Device_deviceName	Matrox Graphics Millennium G200	Name of the device.
Device location	PE_Device_deviceLocation		Location of the device.
Device CMP location	PE_Device_cmpLocation	0,1,0,1	Meaningful only on ES7000 systems: the ES7000 bus address of the device.
	PE_Drive		Information about the non-network disc drives on the host system.
Element identifier	PE_Drive_ID	DR_C	XML identifier of this element.

Drive letter	PE_Drive_driveLetter	C	Logical drive letter of the drive.
Drive volume name	PE_Drive_volumeName		Volume name of the drive, if any.
Drive serial number	PE_Drive_serialNumber	753143928	Serial number of the drive.
Maximum filename size	PE_Drive_maxFileNameSize	255	Maximum filename size for the drive, in bytes.
File system type	PE_Drive_fileSystemType	NTFS	Type of file system for the drive.
Drive total bytes	PE_Drive_totalBytes	9097125888	Total capacity of the drive, in bytes.
Drive free bytes	PE_Drive_freeBytes	4877783040	Available capacity of the drive, in bytes.
	PE_DriveFlag		The characteristics of a drive.
Parent element identifier	PE_DriveFlag_parent_ID	DR_C	XML Identifier of the parent element.
Drive flag values	PE_DriveFlag_flag	CASE_IS_PRESERVED CASE_SENSITIVE UNICODE_STORED PERSISTENT_ACLS FILE_COMPRESSION NAMED_STREAMS SUPPORTS_ENCRYPTION SUPPORTS_OBJECT_IDS SUPPORTS_REPARSE_POINTS SUPPORTS_SPARSE_FILES VOLUME_QUOTAS	
	PE_AppCatalogItem		Information about the installed applications that appear in the Add/Remove Programs list of the Control Panel.
Application name	PE_AppCatalogItem_apName	Unisys Application Asset Manager	Name of the application.
Application version	PE_AppCatalogItem_apVersion	1.1.3	Version of the application.
	PE_Process		Information about the active processes on the host system.
Element identifier	PE_Process_ID	Process.832	XML identifier of this element.
Process name	PE_Process_processName	AUDEMONEXE	Name of the process.
Process ID (PID)	PE_Process_processId	832	PID of the process.
Process depth	PE_Process_depth	0	Nesting level of this process with other processes.
Process affinity mask	PE_Process_affinityMask	1	Processor mask in which this process must run.

Process owner	PE_Process_processOwner	USMV-SYS14TTP\user1	Owner of the process.
Parent element identifier	PE_Process_parentProcess_ID		XML Identifier of the parent process element.
Process start time	PE_Process_startTime	15:31:08 10 Dec 2002	Time when the process was last started.
Process handle count	PE_Process_handleCount	113	Number of open handles.
Process base priority	PE_Process_basePriority	13	Windows priority of the process.
Process CPU time	PE_Process_cpuTime	1093750	Process time in system (100ns) ticks.
Percent process CPU time	PE_Process_percentCpuTime	0	Percentage of CPU time taken by this process since it started.
Process has services (bool)	PE_Process_hasServices	false	True if this process is a system service.
Process has no owner (bool)	PE_Process_ownProcesses	false	True for certain processes that have no owner.
Process peak virtual size	PE_Process_peakVirtualSize	114941952	Peak virtual memory usage, in bytes.
Process page fault count	PE_Process_pageFaultCount	298	Number of page faults taken by this process.
Process peak working set size	PE_Process_peakWorkingSetSize	1232896	Peak working set size of this process, in bytes.
Process working set size	PE_Process_workingSetSize	1232896	Current working set size of this process, in bytes.
Process peak paged pool usage quota	PE_Process_quotaPeakPagedPoolUsage	114560	Peak paged file usage charged against this process' disk quota, in bytes.
Process paged pool usage quota	PE_Process_quotaPagedPoolUsage	114560	Current paged file usage charge against this process' disk quota, in bytes.
Process peak non-paged pool usage quota	PE_Process_quotaPeakNonPagedPoolUsage	1928	Peak disk usage other than paging file charged against this process' disk quota, in bytes.
Process non-paged pool usage quota	PE_Process_quotaNonPagedPoolUsage	1928	Current disk usage other than paging file charged against this process' disk quota, in bytes.
Process page file usage	PE_Process_pagefileUsage	434176	Current page file usage by this process, in bytes.
Process peak page file usage	PE_Process_peakPagefileUsage	434176	Peak page file usage by this process, in bytes.
Process private page count	PE_Process_privatePageCount	434176	Page file usage not shared with other process, in bytes.
Process version	PE_Process_version		Version of the process.
Process description	PE_Process_description		Description of the process, if available.

Process command line	PE_Process_commandLine	C:\Unisys\AAM\bin\audemon.exe +AAM -l -g	Full process path with command line parameters.
	PE_Module		Information about the active modules on the host system.
Module version	PE_Module_version	1.01.3110.0006	Version of the module.
Element identifier	PE_Module_ID	Module.0	XML identifier of this element.
Module base	PE_Module_base	4194304	Memory base address of the module.
Module size	PE_Module_size	20480	Size of the module in bytes.
Module mapped memory	PE_Module_memoryMapped	false	True if the module is a memory-mapped file.
Module creation time	PE_Module_creationTime	11/11/2002 1:52 PM	Time that the module was created.
Module description	PE_Module_moduleDescription		Description of the module, if available.
Module path	PE_Module_path	C:\Unisys\AAM\bin\AUDEMON.EXE	Full path of the module.
	PE_ProcessModuleAssn		Associations between processes and the modules on which they depend.
Element identifier of associated process	PE_ProcessModuleAssn_proc_ID	Process.832	XML ID of the process element using a module.
Element identifier of associated module	PE_ProcessModuleAssn_module_ID	Module.0	XML ID of the module used by a process.

Note: This table is Unisys Confidential. It must not be shared with clients under any circumstances.

Application Asset Manager Port Requirements

The following table lists the known ports on the target server and the network domain controller used by the Application Asset Manager during server discovery.

Port Number/Protocol	Service Name	Comment	Computer System
139/TCP	netbios-ssn	NetBIOS Session Service	Discovery Target
445/TCP	microsoft-ds	Windows 2000 File Sharing	Discovery Target
88/TCP	kerberos	Kerberos	Domain Controller
389/TCP	ldap	Lightweight Directory Access Protocol	Domain Controller

The following are possible additional ports if the system to discover is running NT 4.0.

Port Number/Protocol	Service Name	Comment	Computer System
137/UDP	netbios-ns	NetBIOS Name Service	Discovery Target
138/UDP	netbios-dgm	NetBIOS Datagram Service	Discovery Target

Note: When performing discovery with a firewall in the network, it is best to use the target system's IP address rather than its hostname.

Discovering Servers in a Highly Secure Setting

At banks and other highly secure client sites the customer may be extremely cautious about allowing your notebook computer on their LAN, about allowing remote access to production servers, and about distributing user IDs with administrator privileges and passwords. In such settings, the standard Application Asset Manager approach to discovery may not be feasible. In this situation you can try one of the two client-assisted approaches described below: Install the Application Asset Manager on a client workstation and train the customer to configure and run discovery remotely, or perform discovery one server at a time directly from each host.

Installing the Application Asset Manager on a Client Workstation

1. Copy AAMSetup.exe to a CD and install and configure the Application Asset Manager on the client workstation. Be sure that the installation is done under an administrator user ID that has all the required privileges, and that the host system meets the minimum workstation requirements for installing and running the Application Asset Manager

Important! Do not copy AAMSetup.exe from the CD to the workstation. Run setup from the CD only.

2. Work with the customer to configure discovery using the Wizard.
3. Run the discovery operation as needed to capture client server information.
4. Conduct analysis on the client workstation.

OR

5. Export the discovery XML files, then import them to your notebook computer and analyze the discovery information off-line.
6. **Important!** Be sure to uninstall the Application Asset Manager from the client workstation as soon as the discovery phase is complete. It is a violation of Unisys copyrights to leave the program installed on a customer system.

Performing Discovery Directly on a Host System

1. Copy the discovery executable <AAM installation directory>\AAM\bin\ProcDiscovery.exe to a floppy disk.
2. Ask the customer to mount the disk on the server, and after navigating to the A drive in the Command Prompt, enter the following from the command line:

```
procdiscovery >A:\<server name>.xml
```

Important! Do not allow the customer to copy procDiscovery.exe from the floppy disk onto the server. This is a violation of Unisys copyrights.

If the generated XML file is less than approximately 1.35Mb, the floppy disk

should now contain all the information that you would normally collect from the discovery operation.

It is important that the file name be the name of the server. Otherwise, you will have difficulty managing the generated XML files from the server farm both on floppy disk and in the Application Asset Manager database.

3. Verify that the discovery XML file is complete.

To verify that the file is complete, open it and confirm that the last line contains "</dataroot>". If the file is complete, go to step 6. If the file is incomplete, go to step 4.

4. Ask the customer to mount the disk on the server and enter the following from the command line:

```
procdiscovery ><hard drive letter>:\<server name>.xml
```

Important! Do not allow the customer to copy procDiscovery.exe from the floppy disk onto the server. This is a violation of Unisys copyrights.

5. Ask the customer to copy the generated XML file to a server that you can access from your notebook computer.
6. Copy or drag the <server name>.xml file to the Application Asset Manager database on your notebook computer and proceed with the analysis stage of application profiling.

Analysis

Analysis is the second stage in server consolidation. The analysis process enables you to evaluate the results from the discovery operation with the aim of revealing potential consolidation candidates and possible consolidation conflicts. You can generate reports to identify common processes and files, and any differences in the processes and process dependencies across the server analysis group.

Loading the Discovery Files for Analysis

Before you can perform analysis, you must load your discovery files into an analysis database. To load your files and define the load parameters, select Server Consolidation Tools from the Explorer menu and then select Analysis Database Loader and Populate Analysis Database.

You can also load your discovery files by performing the following steps:

1. Select your project or folder in the left pane of the Explorer window and do one of the following:
 - a. Right click the project or folder, select Server Consolidation Tools and then select Analysis Database Loader and Populate Analysis Database.
 - b. Select Analysis Database Loader and Populate Analysis Database under the Server Consolidation Tools menu bar item.

Refer to the Application Asset Manager online help for detailed instructions on loading your discovery files.

Analyzing the Discovered Files

Once you have loaded your files, you can begin the analysis process. Select a project or folder for analysis.

1. Perform one of the following steps to run the Analysis task:
 - To analyze the latest revision of all of the discovery files, from the Server Consolidation Tools menu point to Process Analysis and then choose Analyze.
 - To analyze some of the files in the designated project, select those files in the list using the Shift or Control keys. Then point to Process Analysis in the Server Consolidation Tools menu and choose Analyze.

You can also perform the operations above by right clicking the selected project or files and selecting Server Consolidation Tools, Process Analysis, and then Analyze from the context menu.

- To analyze the revisions of a single discovery file, right click the file and select Show History. The History dialog box appears. Select the revisions you want to analyze and then choose Analyze from the Server Consolidation Tools menu in the History dialog box.

2. The Analysis Manager appears. Select one of the following tabs:

- Application Statistics
- Server Statistics
- Reports

Generating Statistics

You can generate statistics by performing the query in the Application Statistics tab. Performing this query tells you how many of the applications, processes, and dependencies are the same or are different throughout the server farm. When more of these components are common than different, you know immediately that you have a good server consolidation opportunity for the servers currently selected for analysis.

You also can generate statistics by performing the query in the Server Statistics tab. Performing this query tells you the proportion of systems in the server farm according to the number of processors per server, and the proportion of systems by operating system type. If there is a large number of servers running fewer than eight processors, the customer has an excellent opportunity to scale up to a larger server during consolidation. If many of the servers are running the same operating system, the complexity of the consolidation task is reduced.

Creating Reports

The recommended TCS server consolidation process involves analysis using reports. The Reports tab in Analysis Manager has the following Application Analysis reports that you can select:

- Common Applications/Processes/Dependencies
- Common Processes and Associated Dependencies
- All Applications
- All Processes
- Different Applications/Processes/Dependencies

- Distinct Applications/Processes/Dependencies

The first two reports, Common Applications/Processes/Dependencies and Common Processes and Associated Dependencies, can be filtered by Same Versions or Different Versions. The Common Dependencies report and the Common Processes and Associated Dependencies report can be filtered also by Same Dependency Timestamp and Different Dependency Timestamp.

In addition, three reports are related to Hardware and Operating System Analysis:

- Processor
- Operating System
- Devices

The Common Processes report and the Common Processes and Associated Dependencies report map directly into the System Flow procedure for server consolidation:

- Determine common application components by server to identify consolidation candidates.
- Determine dependency variations among grouped consolidation candidates to reveal potential consolidation conflicts.

Select the report type to run a query. When the query is completed, the results are displayed in the Results tab. You can sort the results on any of the available columns. If you need to clarify the results, you can refine your query and run it again.

All queries are viewable if you check the Display as an SQL Query box in the Reports tab. You can customize a query, and if you want to save it for future reference, copy and paste it into a text file. You can reuse the query at any time by selecting Open SQL Query Template under the File menu.

Using the Common Processes Report

When you select the Common Processes report, all processes running on two or more servers are listed. Processes running on only one server are not reported.

Processes common to multiple servers represent potential server consolidation candidates. However, the processes identified across systems might not be identical. For example, several different releases of a process might exist across many servers, or the dependencies might be different from one version of the process to another. The Common Processes and Associated Dependencies report addresses these discrepancies.

Using the Common Processes and Associated Dependencies Report

This report lists the dependencies associated with a process running on two or more servers. You can select a process by first generating the Common Processes report.

This analysis report reveals potential problems to consolidation that you can present to your customer. Then both you and your customer know those issues to resolve before you can begin server consolidation.

For more information on executing these reports, refer to the Application Asset Manager online help.

Application Asset Manager - Database Administration

Maintaining the Application Asset Manager Database

It is always good practice to back up your Application Asset Manager database regularly. You can back up your database by exporting the current Application Asset Manager database using the Export wizard, and then storing the database as your backup copy. The backup copy can be imported into the Application Asset Manager provided that you delete the old database and create a new one.

To access the Export wizard or the Import wizard, from the Start menu point to Programs, Unisys, and then Application Asset Manager, and choose Export or Import.

To delete or create an Application Asset Manager database, from the Start menu point to Programs, Unisys, and then Application Asset Manager, and choose Administrative Tools. Refer to the Application Asset Manager online help for more information about using these tools.



Note: If you migrate from one release of the Application Asset Manager to another release, you must export your database from the old release and then import it into the new release.

Maintaining the Analysis Database

To permit ODBC-compliant queries from the Analysis tool, a separate database is created under the AAMDBs directory. This database, Analysis.mdb, is used for analysis only. The database tables contain only data derived from discovery XML files that have been explicitly loaded using the Populate Analysis Database menu. The Analysis database contains neither the assets nor the associations between the assets of the Application Asset Manager database.

You might want to archive the Analysis database occasionally. To archive this database, save a copy of the file in a different directory. If you lose your database file, you can copy it back into the AAMDBs directory. You can also reload the Analysis database and a new version of the database file is generated. Saving a copy of the file is the recommended method for backing up the Analysis database.

Title: Application Asset Manager for Application Sentinel 1.1
Type: Functional Design Specification
Owner: Jonathan Ziebell

68905330
Version A

Abstract:

This document is a high-level functional description of the Application Asset Manager (AAM) component for the Application Sentinel program, release 1.1. A more detailed functional description will be provided in the next draft of this document.

The AAM will provide the ability to discover running processes, installed applications, hardware information, and databases on the target resources managed by a server on which the AAM and other Application Sentinel components are installed. Discovery will produce an XML file containing an inventory of the information discovered. The AAM will provide the ability to analyze and compare inventories to determine opportunities for consolidation or aide in application maintenance and deployment. The AAM will also provide the ability to store application assets in the AAM database and to deploy those assets to the target resources as determined necessary from an analysis of the inventories of those target resources.

With a license upgrade a Server Consolidation Plug-in can be enabled in the AAM that will provide the ability to discover, analyze, and deploy on Windows servers throughout a network. Inventories can be collected by Unisys representatives at a customer site and brought back to the Unisys workplace for analysis. The results of this analysis can be presented to the customer in a short period of time as a plan for server consolidation.

Title: Application Asset Manager for Application Sentinel 1.1
Type: Functional Design Specification
Owner: Jonathan Ziebell

68905330
Version A

The UNISYS logo is displayed in a bold, sans-serif font. A large, thin, handwritten-style 'X' is drawn over the logo.

Application Asset Manager for Application Sentinel 1.1

Functional Design Specification

68905330
Version A

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Version A

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Title: Application Asset Manager for Application Sentinel 1.1
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1. Document Control

This document was generated using the PPG Template Generator, 3490 3880, revision J.

1.1. Change History

Version	Description
A	Initial Revision.

1.2. Document Cross Reference

None.

2. Introduction

2.1. Purpose

The purpose of this document is to provide a high-level functional description of the new features and modifications to existing features in the Application Asset Manager (AAM) for the Application Sentinel 1.1 release.

2.2. Scope

Because the AAM is not a new product, it is assumed in this document that readers are familiar with previous versions of AAM. No attempt will be made in this document to describe all the features of AAM. Only those features that are new or have been substantially modified for the Application Sentinel 1.1 release will be described in this document.

The features and user interfaces described in this document are described in the context of the AAM Workbench. Although the AAM Workbench is a new user interface, many of the features in the AAM Workbench are the same as those previously documented in the AAM Windows Explorer shell extension and will not be described in this document.

As a functional design specification this document describes only functional aspects of features and does not provide information regarding algorithms, data flow, etc.

3. Interdependencies

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4. Functional Overview

4.1. Major Functions

The major functions provided by the AAM in the Application Sentinel 1.1 release are Asset Management and Server Consolidation. More specifically, Asset Management and Server Consolidation break down into the functions of discovery, analysis, and deployment. The capabilities included in these functions are similar for Asset Management and Server Consolidation. The difference is that the capabilities of discovery, analysis, and deployment in the context of Asset Management are a proper subset of the capabilities of these functions in the context of Server Consolidation.

For Asset Management, discovery provides the ability to collect asset inventories from managed partitions. Analysis provides the ability to display and compare inventories to determine commonalities and differences across the managed partitions. And deployment provides the ability to install software assets stored in the AAM database on one or more of the managed partitions based on information gleaned from analysis.

For Server Consolidation, discovery provides the ability to collect asset inventories from Windows servers on a network. Analysis provides all the capabilities of analysis for Asset Management plus additional capabilities that aide in determining candidates for consolidation. As in the case of discovery for Server Consolidation, deployment provides the ability to install software assets on Windows servers anywhere in the network.

4.2. Assumptions

It is assumed that readers of this document are familiar with previous versions of the AAM. No attempt will be made in this document to describe the full functionality of AAM.

The discovery and deployment functions included in Asset Management are restricted to the managed partitions. This document assumes that an interface will be available on the management server to provide the set of partitions that are managed by the management server.

5. Functional Description

AAM will provide users the ability to perform Asset Management functions. In AAM these functions are discovery, analysis, and deployment. Users can purchase a license upgrade that will enable a Server Consolidation Plug-in. The plug-in offers all the features of Asset Management plus the ability to discover and deploy across all Windows servers on a network. The Server Consolidation plug-in also enables some queries in the analysis tool that will help users determine opportunities for consolidation.

The remaining topics in this section will provide a high-level overview of the discovery, analysis, and deployment functions.

5.1. Discovery

The AAM discovery function, in its simplest form, can be described as the process of running one or more agents on one or more target systems and saving the information returned by the agents from those targets in the AAM database. Two discovery agents will be provided in this AAM release. One is a computer system discovery agent and the other is a SQL database discovery agent.

The computer system discovery agent returns an inventory of the target system. The inventory returned is a file in XML format. The computer system inventory file is saved in the AAM database with the name of the target system and the CSI (Computer System Inventory) file extension. The inventory includes:

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- Hardware information
- OS information
- Installed applications
- Running processes with their DLL dependencies.

The SQL database discovery agent return an inventory of SQL databases running on the target system. The inventory returned is a file in XML format. The SQL database inventory file is saved in the AAM database with the name of target system and the DBI (DataBase Inventory) file extension. The inventory includes:

- SQL Server name and version on the target machine.
- For each instance of the SQL server on target machine,
 - For each database schema
 - Collect schema information (tables, views, indexes, roles, etc)
 - User logins, permissions and roles
 - User objects in the master database
 - Database names and logins and database client names
 - SQL configuration settings
 - Collation settings
 - Jobs and task
 - SQL alerts
 - Replication
 - DTS packages list
 - Database size and log size information

5.2. Analysis

The Analysis function can be described as the process for viewing and comparing asset inventories returned by the discovery process. The Analysis function provides the following capabilities:

- Application and process differencing
- Hardware and operating system differencing
- Database schema and properties differencing
- Consolidation candidacy determination
- Custom data mining via user-entered SQL statements
- High-level detail view of all discovered assets

5.3. Deployment

The AAM deployment function can be described as the process of installing application assets on one or more target systems. The application assets are stored and versioned in a folder in the AAM database. Configurations are created from the contents of the folder that contain consistent versions of the application assets. Configurations can be deployed to one or more target systems.

Typically an application has a set of requirements that must be met by the target system before the application can be successfully deployed on that system. AAM deployment allows the user to create a list of deployment rules that are checked against an inventory taken from the target system just before the application is deployed to the target system. If any deployment rule cannot be satisfied by the target system, the user is notified through a message box and given the opportunity to deploy any way or to cancel the deployment operation.

An application's assets may consist of one or many files. The AAM deployment function creates a package that is a self-extracting executable containing all of the files for the application in a compressed format. This allows all of the application assets to be sent to the target system as a single file which helps to insure that network problems can never leave the deployment in a state where only a portion of the assets ever reach the target system.

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The application may have a file that must be executed on the target system to install or configure the application on the target system. The AAM deployment function allows the user to specify a file in the package that must be executed after the application assets have been deployed on the target system. Once the package has been copied to the target system it is executed. The package will extract the application assets from its self and copy them to the target directory. If the user has specified a file in the package to execute, the package will execute the file and report its success or failure back to the AAM Workbench.

6. User Interfaces

6.1. Workbench

6.1.1. Overview

The AAM Workbench is a new graphical user interface for Application Sentinel 1.1. The Workbench serves as the framework in which AAM tools operate. In application Sentinel 1.1 there are four tools accessible through the Workbench. They are the Manage, Discovery, Analysis, and Deployment tools. The Workbench provides menu, tool, location, and status bars with interfaces that can be used by tools to customize any or all of these bars.

The AAM Workbench provides a button for each tool on the far right of the menu bar to allow users to switch from any tool to any of the other three tools. When a user switches from one tool to another the main window of the Workbench changes to show the selected tool and the previous tool is hidden from view. No state information is lost when switching from one tool to another. This means that the Workbench maintains the current location in the AAM database and the state of all hidden tools is maintained. Users can switch back to a previously used tool and continue working right where they left off.

Upon exiting the workbench the current tool and other information is persisted in the user's registry so that the next time the user starts the Workbench it will start up in the tool that was active at the time the user last exited the Workbench.

6.1.1.1. Purpose of Interface

The AAM Workbench is the user interface that provides access to the AAM Manage, Discovery, Analysis, and Deployment tools. It provides a common framework while allowing each tool to present a user interface that is best-suited and easiest to use for that particular tool. The Workbench also provides the ability to switch from one tool to another.

6.1.1.2. Functions

The Workbench provides a menu bar. The menu bar contains File, Edit, View, Tools, and Help menus. Each menu contains menu items that are present regardless of which tool is currently active. The active tool can add new menu items to the existing menus or insert new menus in the menu bar.

The Workbench provides a toolbar. Each tool populates the toolbar with buttons that are appropriate for that particular tool.

The Workbench provides a location bar. The location bar displays the path of the current folder in the AAM database. The Workbench provides interfaces for the tools to get and set the location. This allows the user to continue working in the same location while switching from one tool to another.

The Workbench provides a status bar. Each tool can customize the status bar to show status that is appropriate for that particular tool.

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The Workbench provides a window for the tools to display their controls in. Each tool can change this window to display a set of controls that is appropriate for that particular tool.

The Workbench provides a button for each tool to allow users to switch from one tool to another. The name of the current tool is displayed in the Workbench title bar and the bitmap representing the current tool is displayed in far right corner of the menu bar. The four tool buttons are adjacent to the left side of the bitmap.

6.2. Manage Tool

6.2.1. Overview

The Manage tool provides a view into the AAM database folder hierarchy. The Manage tool divides the Workbench window into three panes. The left-hand pane of the window is separated from the right-hand pane by an adjustable vertical splitter bar. The left-hand pane contains a tree control which displays the folder hierarchy. The right-hand pane is split into two panes by an adjustable horizontal splitter bar. The pane above the horizontal splitter bar contains a list control that displays the contents of the currently opened folder in the tree control. The pane below the horizontal splitter bar contains a tab control with three tabs. The first tab contains a list control that displays the version history of the item in the tree control or list control that currently has the focus. The second tab contains a list control that displays the transaction log for the currently selected folder in the tree control. The third tab contains a list control that displays the recycle bin for the currently selected folder in the tree control.

For any item selected in any of the three panes there is a popup menu that is activated by clicking the right mouse button while hovering over the selected item. The popup menu contains functions that are appropriate for the type of item selected. Also, the menus in the main menu bar are customized according to the type of item selected.

6.2.1.1. Purpose of Interface

The Manage tool provides a user interface from the perspective of the AAM database. It allows users to navigate the folder hierarchy and to perform functions on the files contained in the folders. Many of the file management functions such as open, copy, move, rename, search, delete and properties are available through Manage tool.

The Manage tool provides administrative functions to manage user access to the AAM database and to view transaction logs for transactions performed in the AAM database.

The AAM database fully supports versioning for files and folders. The Manage tool provides the interface for versioning functions such as get latest version, check out, check in, branch, label, history, and differences.

The functions of discovery, analysis, and deployment can be performed from the perspective of the folder hierarchy in the Manage tool. That is, users have the choice of interfaces for the discovery, analysis, and deployment tools. For example, a user can choose the Manage tool to perform the function of discovery from a folder in the hierarchy as a set of functions that set up and run discovery. Or the user can choose the discovery tool that presents the discovery process as a set of steps of which one of those steps is to choose a folder in the AAM database.

6.2.1.2. Functions

6.2.1.2.1. Discover

The Manage tool provides the ability to discover computer system and SQL database inventories from the selected folder in the tree control or list control. The discover function can be selected from the Tools menu

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available in the main menu bar or the popup menu for the folder. The Discover menu item in the Tools menu is a popup menu containing menu items for Properties, Select Targets, Schedule, and Run.

Selecting the Properties menu item in the Discover popup menu displays the Properties dialog box with the Discovery page active in the dialog. The Discovery page provides the ability to choose the agents for discovery.

Selecting the Select Targets menu item in the Discover popup menu displays the Target Selection wizard. The wizard provides the ability to choose the target systems to discover via five different methods: host name, domain name, site name, IP subnet, or a list of host names.

Selecting the Schedule menu item in the Discover popup menu displays the Task Scheduler dialog box. The Task Scheduler dialog provides the ability to run the discovery at one or more times in the future.

Selecting the Run menu item in the Discover popup menu displays the Discovery Options dialog box. The Discovery Options dialog provides the ability to control various options that control how the discovery process is executed. After choosing 'OK' in the Discovery Options dialog the discovery process starts and the Discovery Status dialog is displayed to show status messages returned to the AAM Workbench by the discovery process.

6.2.1.2.2.Analyze

The Manage tool provides the ability to analyze computer system and SQL database inventories. The Analyze function can be selected from the Tools menu in the main menu bar or the popup menu for any set of files and/or folders in the AAM database. Selecting the Analyze function from the Manage tool displays a child window containing the Analyze tool.

6.2.1.2.3.Deploy

The Manage tool provides the ability to deploy an application from the selected configuration folder in the tree control or list control or from the selected version of the configuration folder in the history tab to one or more target systems. The deploy function can be selected from the Tools menu available in the main menu bar or the popup menu for the configuration folder or the configuration folder version. The Deploy menu item in the Tools menu is a popup menu containing menu items for Properties, Rules, Select Targets, Schedule, and Run.

Selecting the Properties menu item in the Deploy popup menu displays the Properties dialog box with the Deploy page active in the dialog. The Deploy page provides the ability to configure the packaging application for deployment.

Selecting the Rules menu item in the Deploy popup menu displays the Rules Editor dialog box. The Rules Editor dialog provides the ability to select rules for deployment and to edit their attributes.

Selecting the Select Targets menu item in the Deploy popup menu displays the Target Selection wizard. The wizard provides the ability to choose the target systems for deployment via five different methods: host name, domain name, site name, IP subnet, or a list of host names.

Selecting the Schedule menu item in the Deploy popup menu displays the Task Scheduler dialog box. The Task Scheduler dialog provides the ability to run the deployment at a time in the future.

Selecting the Run menu item in the Deploy popup menu displays the Deployment Options dialog box. The Deployment Options dialog provides the ability to control various options that control how the deployment process is executed. After choosing 'OK' in the Deployment Options dialog the deployment process starts and the Deployment Status dialog is displayed to show status messages returned to the AAM Workbench by the deployment process.

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6.2.1.2.4.Search

The Manage tool provides the ability to search the AAM database for files or folders meeting a variety of criteria through the Search dialog box.

The Search dialog box provides the user interface for performing searches on the AAM database. It contains fields for specifying names, text and locations to search for, as well as two check boxes that allow the user to specify if case should be ignored during the search and if subfolders of the specified location should be included in the search. The dialog also provides buttons to start and stop a search, choose advanced options, get help and close the dialog. The dialog also contains a list view for displaying the results of the search.

The dialog contains a menu bar which provides a user interface to perform various versioning and management functions on items displayed in the results list, as well as changing the style and order of items in the results list.

The dialog contains a status bar with two panes. One pane shows the current path being searched in the database and the other shows the number of matches found.

The dialog has a system menu available from the caption bar, as well as, close, minimize and maximize buttons in the caption bar. It is a modeless dialog to allow the user to continue to work in the manage view while the dialog is displayed.

6.2.1.2.5.Advanced Search Options

Advanced search options including searching by custom properties, size, time and users are available to users through the Advanced Search Options dialog box. This dialog can be displayed from a button on the Search dialog box.

The Advanced Search Options dialog box provides the user interface for setting advanced options during a search. It is a modal dialog proving only 'OK' and 'Cancel' buttons aside from the options controls. The 'OK' button will dismiss the dialog and cause the specified advanced options to be set. The 'Cancel' button will dismiss the dialog leaving the options unchanged. Advanced options are maintained for the lifetime of the parent Search dialog box so that a user may bring up the Advanced Search Options dialog more than once to refine a search without the need to reset all advanced options each time it is displayed.

6.2.1.2.6.Open and Open With

The Manage tool provides the ability to open a file from the AAM database based on the file state. If the current user does not have the file checked out, the current revision of the file is displayed in read-only mode with the appropriate viewer. If the current user has the file checked out, the working revision of the file is opened for editing in the appropriate editor. If the viewer or editor is configured in the system registry for the type of file selected, that viewer or editor is used. Otherwise, the Open With dialog box is displayed for the user to select an application to view or edit the file. In addition, the user is allowed to select any other application instead of the registered one to view or edit a file by selecting the Open With menu option.

The Open function is also available on folders in the AAM database. If the Open function is selected on a folder in the tree control or on a version of a folder from the version history of the folder in the tab control a child window is displayed that contains the contents of the opened folder.

Double clicking on an item in the tree control, list control, or history tab invokes the open function.

6.2.1.2.7.Move

The Manage tool provides the ability to move all or part of the contents of an AAM database folder to a different folder. The user can use the Cut function to mark the items in a folder to be moved. The user can

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then select a different folder and choose the Paste function to move the marked items from their original folder to the selected folder. Both the source and destination folders must be in a mutable state, otherwise, the move is aborted and an appropriate error message is displayed. A folder is mutable if it is not versioned or it is checked out to the current user.

6.2.1.2.8.Set Current Version

The Manage tool provides the ability to select the version of a file or folder that will be the current version of that file or folder. The current version of a file or folder is the version that is displayed in the list control and the current version of a folder is the version of the folder that is opened when the folder is selected in the tree control.

6.2.1.2.9.State History

The Manage tool provides the ability to view the state history of a revision of a file or folder. The State History dialog box can be displayed by choosing the 'History' button in the Properties dialog box for a revision selected in the history tab. The state history shows when an item was created, checked out and/or checked in. It also shows the user who put the revision into a particular state.

6.2.1.2.10.File Icons and State Icons

The Manage tool displays the icon for a particular file type according to settings in the user's registry. If the default viewer for a file type is changed, the icon displayed for all files of that type in the AAM database will be changed to the appropriate icon for the selected viewer.

The Manage tool displays an icon that represents the state of an item in the tree control, list control, or history tab to the left of the item icon. There are state icons to represent the following states:

- 1) Checked out
- 2) Checked out by multiple users
- 3) Checked out exclusively
- 4) Shared by two or more folders
- 5) Pinned to a revision
- 6) Labeled

6.3. Discovery Tool

6.3.1.Overview

The discovery process involves running one or more agents on one or more target systems to gather an inventory of information about those systems. The inventories are then stored in the AAM database for analysis.

The information required for a discovery can be broken down into three areas: a folder, tools, and targets. The discovery folder is the location in the database where the discovered inventory will be stored when completed. The targets are the systems that the user wants to discover. The tools determine the discovery agents that will be run on the target systems to gather the inventory.

6.3.1.1.Purpose of Interface

The Discovery Tool provides a simplified interface for performing discovery on target systems. There are two main areas in the interface, the command pane and the tab pane. The command pane consists of a set of command buttons for selecting the desired folder for discovery, selecting and setting the various discovery tools, selecting the target systems for discovery, and scheduling or running the discovery. The tab pane consists of a set of tabs on a tab control. Each tab displays a subset of all of the relevant information about

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the current discovery operation, including the contents of the current folder, the selected targets and the tools that will be run on the selected targets.

6.3.1.2.Functions

6.3.1.2.1.Command Pane

The Command Pane contains five command buttons, which allow the user to perform all of the necessary setup for discovery. The command buttons are Select Folder, Select Tools, Select Targets, Schedule, and Run.

The Select Folder button displays the Open Item dialog box. This dialog allows the user to browse the database and select the folder desired for discovery. When the user chooses "Open" the selected folder becomes the current folder. The selected folder is where the inventories of the selected targets will be stored upon completion of the discovery operation. The selected folder's contents are displayed in the "Folder" tab in the tab pane.

The Select Tools button displays the Select Tools dialog box. This dialog allows the user to select which discovery tool should be used to discover the selected targets. The choices include the computer system discovery tool, the database discovery tool, or the combined computer system and database discovery tool. When the user chooses "OK" the appropriate agents and sequence are displayed in the Tools tab in the tab pane.

The Select Targets button displays the Target Selection wizard. This wizard simplifies the steps in selecting targets for discovery. Targets may be specified by host name, domain name, site name, IP subnet or a list of hosts. When the user chooses "Save" and subsequently "Close" the selected targets will be displayed in the Targets tab in the tab pane.

The Schedule button displays the Task Scheduler dialog box. This dialog allows the user to schedule the discovery operation to occur at one or more times in the future.

The Run button displays the Discovery Options dialog box. This dialog allows the user to specify options for the discovery process. After the user chooses OK in the Discovery Options dialog the discovery process starts and displays a dialog, which provides current discovery status as well as error information relating to the discovery. The discovery operation will run the selected tool on each of the selected targets. As the discovery is completed for each target, the inventory of that target will be saved in the selected folder in the AAM database for later analysis.

6.3.1.2.2.Tab Pane

The Tab Pane provides a display for all information relevant to the discovery operation.

The Folder Tab displays the contents of the selected folder.

The Agents Tab displays a list control showing each of the agents selected for discovery as well as the desired parameters and other properties determining how the agents are to be run during discovery. It also provides controls for modifying the sequence by adding, editing or deleting agents or applications in the sequence.

The Targets Tab displays information about the selected targets. This information includes the selection method (i.e. host name, domain name, etc) as well as any necessary user codes and passwords used when discovering a given target.

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6.4. Analysis Tool

6.4.1. Overview

The Analysis Tool provides for the statistical analysis and data mining of all facets of one or more discovered system asset inventories. Various analysis tasks are "canned" and include application and process differencing, hardware and operating system differencing, database schema and properties differencing, as well as consolidation candidacy determination. Additionally, a quick overview of various application and hardware/operating system differences are available in chart form.

The Analysis Tool also provides for the creation of custom data mining via user-entered SQL statements, thereby permitting a virtually unbounded capacity for analyzing system asset inventories.

Finally, the Analysis Tool provides a high-level detail view of all discovered assets.

6.4.1.1. Purpose of Interface

The Analysis Tool is designed to provide a well-ordered yet flexible interface for the analysis of system asset inventories. Divided into two major functions, the Analysis Tool provides for the navigation of system asset inventories via a tree view with associated detail in an explorer-like format, as well as a variety of categorically defined statistical functions.

Initially, the Analysis Tool is devoid of any information and through the inclusion of asset inventories, the tree/detail view and the statistical views are populated and provide for easy manipulation of the information and data contained within the inventories.

6.4.1.2. Functions

The Analysis Tool is divided into two panes, the tree pane and the tab pane. These two panes are described in more detail below.

6.4.1.2.1. Tree Pane

The tree view provides the interface for navigating through the asset inventories that are loaded for analysis. Within the tree view, each inventory occupies a top-level item similar to a disk drive or perhaps server within the network neighborhood as seen in the windows explorer. Each inventory will have a number of subordinate items that, for a given inventory, will include, but may not be limited to, an application node that contains all discovered applications, a process node that contains all discovered processes, and a device node that contains all discovered devices. When any node that has relevant information to be displayed is selected, any and all detail is displayed in the details tab found in the tab pane.

6.4.1.2.2. Tab Pane

The details tab provides a view to all of the detail information for any item selected in the tree view located in the tree pane. Information is displayed in a column wise table as attribute/value pairs. This view is informational only and provides no other functionality for the analysis of asset inventories.

The application tab provides an interface for the analysis of application-specific differencing. This is useful for discovering software level mismatches for applications and/or libraries that are distributed across multiple systems.

The server tab provides an interface for the analysis of server hardware/operating system differencing. This is useful for discovering commonalities and differences between server capabilities with a view toward consolidation or application migration. Servers that have like hardware/operating systems are likely

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1 candidates for application consolidation and/or migration, whereas differences in hardware capabilities or
 2 deployed operating systems may prevent consolidation and/or migration. .

3 The consolidation tab provides an interface for the analysis of applications with a view toward
 4 consolidation. This view is geared towards a more fine-grained analysis of consolidation candidates that
 5 either the application tab or the server tab. Results obtained from this tab provide a list of applications that
 6 are compatible in terms of required libraries and hardware resources and are therefore targets for
 7 deployment on a single server or cluster.

8 The database tab provides an interface for the analysis of database schemas and properties. This view is
 9 geared towards the DBA who wants to ensure that deployed databases remain in-sync and/or to discover
 10 databases that can be consolidated onto a single server.

11 The charts tab provides an interface for the display of high-level differencing information with a view
 12 toward consolidation and/or migration. The various charts are designed to reveal at a glance the likelihood
 13 that consolidation and/or migration of applications is achievable. Each chart shows a different aspect of the
 14 consolidation/migration problem and when taken together should point to areas in need of further analysis.

15 The results tab provides an interface for the display of the low-level analysis initiated by the application,
 16 server, consolidation, and database tabs. When a specific data-mining query has been established in any
 17 one of the aforementioned tabs, a corresponding Analyze button may be clicked. Clicking on an Analyze
 18 button obtains a results tab containing the corresponding query results.

20 6.5. Deployment Tool

21 6.5.1. Overview

22 The deployment process involves verifying zero or more deployment rules, copying application assets from
 23 the AAM database to a temporary directory on the user's disk drive, and compressing the files into a self-
 24 extracting package. The package is then distributed and executed on one or more target systems. Included
 25 in the package are instructions that specify the directory where the files should be copied on the target
 26 system and the name of the application, if any, in the package that must be executed after the files have
 27 been extracted.

28 When a file in the package already exists in the target directory the following procedure is used to
 29 determine if the file will be overwritten. If the file has version information, then the file will be overwritten
 30 only if the packaged version is newer than the version of the file in the target directory. If the file does not
 31 have version information, then the last modified time stamps will be compared. The file will be
 32 overwritten if the packaged file has a later timestamp than the version of the file in the target directory.

33 The information required for a deployment can be broken down into four areas: a configuration folder, a
 34 package description, rules, and targets. The deployment configuration folder is the location in the database
 35 where the application assets and deployment properties have been saved. The package description specifies
 36 the target directory and the name of the application, if any, in the package to execute after the files have
 37 been extracted from the package. The rules determine if minimum conditions of deployment are met by the
 38 target system before the application assets are actually deployed. The targets are the systems that the user
 39 wants to deploy the application assets on.

40 6.5.1.1. Purpose of Interface

41 The Deployment Tool provides a simplified interface for performing deployment of application assets to
 42 target systems. There are two main areas in the interface, the command pane and the tab pane. The
 43 command pane consists of a set of command buttons for selecting the desired configuration folder in the
 44 AAM database for deployment, selecting and setting up the various deployment rules, and scheduling or
 45 running the deployment. The tab pane consists of a set of tabs on a tab control. Each tab displays a subset

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Title: Application Asset Manager for Application Sentinel 1.1
 Type: Functional Design Specification
 Owner: Jonathan Ziebell

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of all of the relevant information about the current deployment operation, including the contents of the current configuration folder in the AAM database, the selected deployment rules, and the selected target systems.

6.5.1.2.Functions

6.5.1.2.1.Command Pane

The Command Pane contains five command buttons, which allow the user to perform all of the necessary setup for deployment. The command buttons are Define Package, Select Rules, Select Targets, Schedule, and Run.

The Define Package button displays the Open Item dialog box. This dialog allows the user to browse the database and select the configuration folder desired for deployment. When the user chooses "Open" the selected configuration folder becomes the current folder. The selected configuration folder is where the application assets are stored that will be deployed to the selected targets upon completion of the deployment operation. The selected configuration folder's contents are displayed in the "Package" tab in the tab pane. The Package tab also allows the user to define the target directory and the application in the package to execute.

The Select Rules button displays the Rules Editor dialog box. This dialog allows the user to select rules and edit their attributes. The rules available to select from include:

- 1) The minimum amount of free disk space required on a specified drive.
- 2) The minimum number of processors required.
- 3) The minimum amount of memory required.
- 4) Do not deploy if the application is already installed.
- 5) Do not deploy if the application has a dependency on one or more other applications to run, and any one of those other applications is not installed.
- 6) Do not deploy if the application has a conflict (cannot run) with one or more applications, and any of those applications is installed.

When the user chooses "OK" in the Rules Editor dialog box the selected deployment rules are displayed in the Rules tab in the tab pane.

The Select Targets button displays the Target Selection wizard. This wizard simplifies the steps in selecting targets for deployment. Targets may be specified by host name, domain name, site name, IP subnet or a list of hosts. When the user chooses "Save" and subsequently "Close" the selected targets will be displayed in the Targets tab in the tab pane.

The Schedule button displays the Task Scheduler dialog box. This dialog allows the user to schedule the deployment operation to occur at some time in the future.

The Run button displays the Deployment Options dialog box. This dialog allows the user to specify options for the deployment process. After the user chooses OK in the Deployment Options dialog the deployment process starts and displays a dialog, which provides current deployment status as well as error information relating to the deployment. The deployment process will perform the following steps.

- 1) If there are deployment rules specified, get the inventory from the target system and evaluate the rules against the inventory. If a rule evaluates to false, display a message box that indicates the rule that failed and provides buttons to override the rule or to cancel the deployment operation.
- 2) Copy the files in the selected configuration folder from the AAM database to a temporary directory on disk.
- 3) Generate a file containing the deployment information and put it to the same temporary directory on disk.
- 4) Compress and copy the files from the temporary directory into a self-extracting package.
- 5) Copy the package to the target system and execute the package.

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- 6) The package will decompress the files and copy them to the target directory specified in the deployment information file.
- 7) If the deployment information file indicates a file to execute, the package will execute the file.
- 8) The deployment information file and the deploy package executable will be deleted from the target system.

6.5.1.2.2.Tab Pane

The Tab Pane provides a display for all information relevant to the discovery operation.

The Package Tab displays the contents of the selected configuration folder in the AAM database and other package information.

The Rules Tab displays a list control showing each of the rules and their attributes selected for deployment.

The Targets Tab displays information about the selected targets. This information includes the selection method (i.e. host name, domain name, etc) as well as any necessary user codes and passwords used, target directories used, and the application executed when deploying to a given target.

7. Issues and Risks

None

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1 Appendix A. Definitions, Acronyms, and 2 Abbreviations

3 None

4

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Appendix B. Alternatives Considered

2 None

3

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Appendix C. Functional Design Summary

Requirement ID	Requirement
T1644	<p>Application Deployment - Detection of application differences Compare new application to applications existing on a system to detect any conflicts or issues before a rollout.</p> <p>Solution requires developmental system to be present in order to determine how the new application is constructed. Integration with a knowledgebase is not supported in the Application Sentinel 1.1 timeframe. For Application Sentinel 1.1 the staged application will be compared to the production application to determine process/DLL naming and version conflicts.</p>
T1652	<p>Application Deployment - Reporting Produce a report of configuration changes for applications that are executing. The applications will need to be running in order for configuration change analysis to take place.</p>
T1653	<p>Application Availability - Backup and Recovery The Application Asset Manager can assist with the sizing of a system based on a given set of previously AAM discovered applications. Definition of a recover process is outside the scope of the AAM.</p>
T1656	<p>Application Maintenance - Configuration Management Assist with the updating of application configurations on the ES7000. AAM will provide the ability to deploy application assets to ES7000 partitions</p>
T1663	<p>Maintainability of Application Sentinel Application Sentinel should be able to accept plug in modules or additions that deal with specific areas or applications. AAM will provide open interfaces which can be called from outside tooling (i.e. plug-ins) to expose both data and functionality for their respective application domains. AAM will integrate with and provide open interfaces to the Software Backplane architecture currently under definition.</p>
T1838	<p>Operating Environment The following are execution environments for Application Asset Manager</p>
T1838.1	<p>Windows 2000 Data Center Application Asset Manager will support this platform.</p>
T1838.2	<p>Windows 2000 Advanced Server Application Asset Manager will support this platform.</p>
T1838.3	<p>32-bit Windows .Net Data Center Server Qualify Application Asset Manager for .Net Server. Will not internally qualify Application Asset Manager, Launchpad and Rules Engine for .Net Server release for Application Sentinel 1.1. Resource limitations.</p>
T1895	<p>Application Asset Manager - SQL Tools Application Asset Manager SQL Tools . The child requirements define SQL tool requirements for Application asset Manager.</p>
T1895.1	<p>SQL Analysis Tools Requirements Implement SQL Analysis Tools features below as described by SQL Server Consolidation 1.0 MSOR item M906.</p> <ul style="list-style-type: none"> - The Application Asset Manager discovery and analysis tooling will detect differences in roles, users, aliases, defaults, rules functions, user defined datatypes, user messages, tables, indexes, views, extended procedures, procedures and triggers. - The Application Asset Manager discovery and analysis tooling will detect and report on activity (clients, logins, and database usage)

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T1895.2	<p>Migration Tools requirements</p> <p>The Application Asset Manager will allow the user to discover and report on usercode and password information.</p> <p>The ability to migrate usercodes/passwords to other SQL database instances will not be provided in this release.</p>
T1935	<p>White paper for Application Asset Manager</p> <p>White paper will be made available on Application Asset Manager</p>
T1970.2	<p>Security of Application Sentinel</p> <p>Application management facilities of Application Sentinel do not introduce security breaches.</p>
T1981.2	<p>Application Deployment - Updates</p> <p>Automatically detect the level of software installed on distributed systems and bring them up-to-date depending on the deployment rules. The Application Asset Manager will provide the capability to automatically discover and compare versions of installed applications across server domains. The Application Asset Manager will permit the Administrator to define hardware resource requirements prior to deployment of an application. The AAM will pre-validate that the resources are available on the target system prior to deployment. The administrator will be notified if defined conditions are not present. The administrator will have the ability to override the deployment rule if necessary.</p>
T1982.2	<p>Application Deployment - Distributed Applications</p> <p>The Application Asset Manager will automate deployment of applications to one or many servers.</p>
T1983.1	<p>Application Deployment - Software Inventory</p> <p>Application Asset Manager provides the ability to automatically, through scheduling of AAM remote discovery agents, maintain an inventory of executing applications and their dependencies.</p> <p>The capability to determine dependency information cannot be determined unless the application is executing.</p>
T1997.2	<p>Internationalization/Localization</p> <p>Implement Application Asset Manager user interfaces to be I18N compliant.</p>
T1999.2	<p>Application Maintenance - Version Control</p> <p>The Application Asset Manager will maintain an inventory of all metadata (including installed and executing applications and hardware resources of all VMWare instances, Slot Appliances and partitions). The metadata information will be versioned in the AAM (as defined through best practices) for purposes of comparing 'last known good' application execution environments. In the event of future server degradation, as a result of newly deployed applications or a alteration of server resources, comparisons can be made between last know good server instance vs. server instance that failed through the AAM Analysis Manager indicating immediately the differences (application or server resource) between the two. Recovery would then consist of either application redeployment or manual reallocation of serve resources to quickly recover to last known good server state. Data recovery, as is often the case, is the responsibility of the running application upon re-initialization.</p>
T2007.2	<p>Internationalization of Application Asset Manager</p> <p>Application Asset Manager user interfaces will be I18N compliant.</p>

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T2019.2	<p>Management Server repositories Support the repositories that Server entinel supports. These are MSDE 2000, SQL Server 7.0, and SQL Server 2000. AAM will continue to use proprietary data stores for the Application Asset Manager product. However, the ability exists in the product to export captured data to MSDE 2000, SQL Server 7.0 and SQL Server 2000.</p>
T2021.3	<p>Managed Applications and Databases Application Asset Manager will assist in the process of deploying applications both previous and prior revisions of the application and database artifacts. Persisted data and the restoring thereof is the responsibility of the applications data restore process.</p>
T2023.4	<p>Planned Application Downtime Application Asset Manager will assist in the process of deploying applications both previous and prior revisions of the application and database artifacts. Persisted data and the restoring thereof is the responsibility of the applications data restore process.</p>
T2053	<p>Modify Export to save deltas instead of entire file versions.</p>
T2054	<p>Launch Batch and Script files. Enhance the Discover and Manage views of the Workbench to launch batch files and scripts in addition to applications</p>
T2055	<p>Use temporary file for Discovery data. Route discovery through a temporary folder in the file system that is created before discovery and deleted after discovery.</p>
T2056	<p>Provide load status in the Workbench. Provide load status in the Manage, Discover, and Analysis views of the Workbench.</p>
T2152.1	<p>Application Deployment - Deployment Rules The Application Asset Manager will permit the Administrator to define hardware resource requirements prior to deployment of an application. The AAM will pre-validate that the resources are available on the target system prior to deployment. The administrator will be notified if defined conditions are not present. The administrator will have the ability to override the deployment rule if necessary.</p>
T2151.1	<p>Application Deployment - Manual Intervention Any administrator defined resource rule can be overridden by the Administrator using the Application Asset Manager.</p>

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Abstract:

Functional Design Specification for new/modified Server Consolidation functionality in the Application Asset Manager. This functionality will simplify the user interface for Server Consolidation while maintaining the existing flexibility of use and management of Server Consolidation assets throughout the project lifetime.

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Application Asset Manager Server Consolidation Features

Functional Design Specification

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1. Document Control

This document was generated using the PPG Template Generator, 3490 3880, revision J.

1.1. Change History

Version	Description
A	Initial Revision
B	Updated per review

1.2. Document Cross Reference

None.

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2. Introduction

2.1. Purpose

The purpose of this document is to provide a functional level description of the proposed new features and/or modifications in the Application Asset Manager (AAM) for Server Consolidation.

2.2. Scope

The features and user interfaces described in this document are described in the context of the AAM Configuration Wizard and the AAM Shell Extension (the shell). They are additions or modifications to the Configuration Wizard or the shell.

As a functional design specification this document describes only functional aspects of features and does not provide information regarding algorithms, data flow, etc.

3. Functional Description

AAM will provide Server Consolidation users the ability to run or schedule server consolidation tools to discover and analyze their server application information, providing trace-ability of the server consolidation assets throughout the project's lifetime by storing all versions of the assets.

Unisys representatives must be able to install and configure AAM on their laptops in order for AAM to be used at customer sites where Unisys is under contract to provide server consolidation services. To facilitate this, the AAM Configuration Wizard will provide users the ability to create AAM databases that are much smaller than those created by the current version of the Configuration Wizard. The new minimum size of an AAM database will be 600 MB. The old minimum size was 1.4 GB.

3.1. Server Consolidation Extensions

A new extension will be loaded into the AAM database at database creation time from the AAM.xml initialization file. The presence of the "Server Consolidation Project" extension will cause the shell to add Server Consolidation Project to its New menu as well as a new Server Consolidation menu to the Windows Explorer main menu bar. The Server Consolidation menu will contain items to create a new Server Consolidation Project, configure and run Discovery, run Analysis, and view Server Consolidation Help. (Requirements T1009, T1010, T1049)

3.2. Server Consolidation Projects

In order for AAM to properly run server consolidation tools and update the discovered assets a new container type, "Server Consolidation Project" will be created in AAM. A Server Consolidation Project will contain server consolidation assets. A Server Consolidation Project will store all revisions of the assets. For each server consolidation project a Server Consolidation Project will be created in AAM to provide a view into the server consolidation history.

To manage the project from the AAM shell, initially, a user will create a Server Consolidation Project and assign it a working path. The user can then discover and analyze their server information via the Discover and Analyze operations. (Requirements T1009)

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3.3. Discovery Properties

As with any other projects, a user will have the ability to view and modify properties for Server Consolidation Projects. The Discovery page in the Properties dialog will allow the advanced user to view or modify the discovery process sequence. A Discovery Wizard will guide new users through the process of configuring the process sequence for Server Consolidation Discovery.

3.4. Discover

A user will have the ability to Discover Server Consolidation Projects. The Discover operation will run the discovery process sequence then update the Server Consolidation Project with any new revisions of the discovered server consolidation files. Optionally, a user can choose to get server consolidation files from the database before the discovery process sequence is run.

3.4.1. Run Discovery Process Sequence

The Discovery Process Sequence is an ordered list of applications or utilities that perform the actual discovery. The Application Asset Manager provides one discovery application but a user could optionally use any applications that discover server information. The applications are run one at a time and in order.

3.4.2. Updating the Database

After the discovery process sequence has run, AAM will update the database accordingly. That is, if the applications in the sequence have output new server consolidation assets or modified existing assets they will be added to (if they don't already exist) or updated in the Server Consolidation Project. In cases where files already exist in the database and need to be updated by the AAM or cases where new files are added to the database the user will be allowed to specify various options specifying the state of the objects in the database as well as files in the file system.

3.4.3. Getting Files

Optionally, before the discovery process sequence runs the user can choose to retrieve server consolidation files from the database. The AAM will retrieve the Server Consolidation Project to a user specified source folder. A user will be allowed to specify various options specifying desired file revisions, file system options, etc.

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3.5. Analysis Properties

As with other projects, a user will have the ability to view and modify properties for Server Consolidation Projects. The Analysis page in the Properties dialog will allow the advanced user to view or modify the analysis process sequence.

3.6. Analyze

A user will have the ability to Analyze Server Consolidation Projects. The Analyze operation will retrieve server consolidation files from the database and run the analysis process sequence. Optionally, a user may choose to then update the Server Consolidation Project after the analysis process sequence is run with any new revisions of the server consolidation files.

3.6.1. Getting Files

Before the analysis process sequence runs AAM will retrieve server consolidation files from the database. The AAM will retrieve the Server Consolidation Project to a user specified destination folder. A user will be allowed to specify various options specifying desired file revisions, file system options, etc.

3.6.2. Run Analysis Process Sequence

The Analysis Process Sequence is an ordered list of applications or utilities that perform the actual analysis. The Application Asset Manager provides one analysis application but a user could optionally use any applications that analyze server information. The applications are run one at a time and in order.

3.6.3. Updating the Database

Optionally, after the analysis process sequence has run, AAM will update the database accordingly. That is, if the applications in the sequence have output new server consolidation assets or modified existing assets they will be added to (if they don't already exist) or updated in the Server Consolidation Project. In cases where files already exist in the database and need to be updated by the AAM or cases where new files are added to the database the user will be allowed to specify various options specifying the state of the objects in the database as well as files in the file system.

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4. User Interfaces

4.1. Configuration Wizard

4.1.1. Overview

4.1.1.1. Purpose of Interface

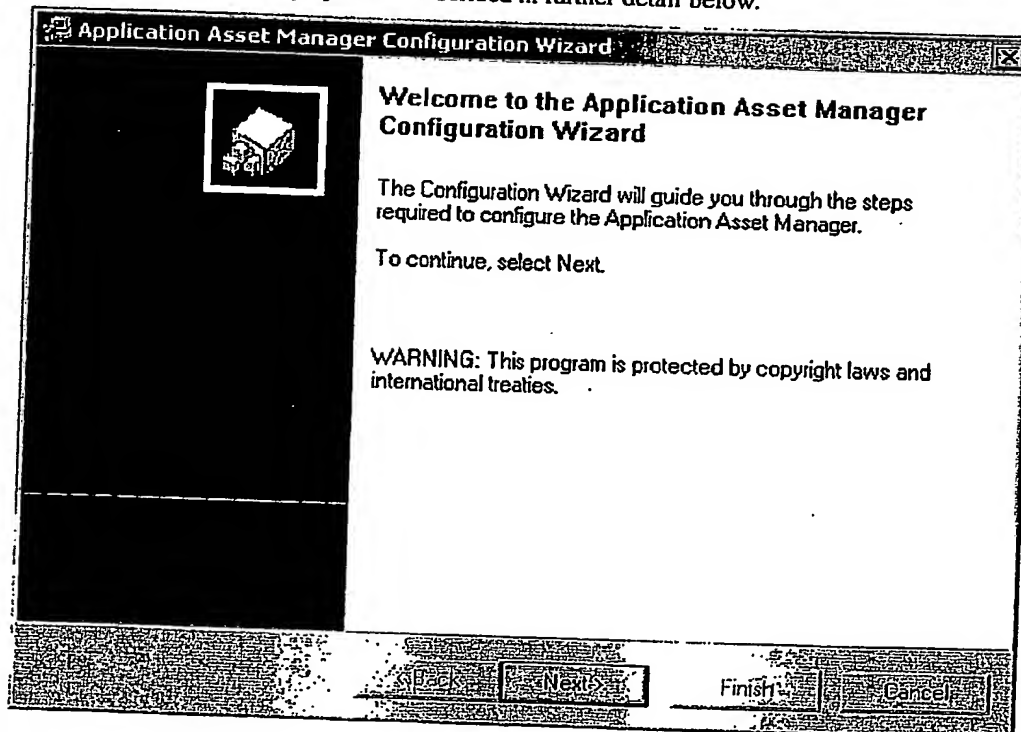
The AAM Configuration Wizard provides the user interface to configure AAM and create an AAM database. The Configuration Wizard must be run after installing AAM, but before using the shell.

4.1.1.2. Functions

The functions performed by the wizard consist of registering and starting database services, creating an FTP virtual directory, creating the AAM universe and database, loading the AAM database schema, and initializing the AAM database. (Requirements T840, T1007)

4.1.1.3. Form

The AAM Configuration Wizard will have pages to collect login information, database name and size information, and audit and data partition size information. Once a user has entered this information, a summary will be displayed in the wizard to allow the user to review the information. If the information is not to the user liking, a Back button will allow the user to return to any page and make corrections. Each page of the wizard is displayed and described in further detail below.



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Field	Description
Next	Advances to the next page in the Configuration Wizard.
Cancel	Exits the Configuration Wizard without configuring AAM.

Application Asset Manager Configuration Wizard

Login Information
 Please enter the information requested.

Please enter the user ID, password, and domain name.

Caution! The user ID and password are case sensitive.

User ID:

Password:

Domain Name:

Field	Description
User ID	The user's Windows login ID.
Password	The user's Windows login password.
Domain Name	The user's Windows login domain name.
Back	Returns to the Welcome page.
Next	Advances to the next page in the Configuration Wizard.
Cancel	Exits the Configuration Wizard without configuring AAM.


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Application Asset Manager Configuration Wizard

Database Information
 Please enter the information requested.

Please enter the database name, size, and maximum number of users.

 The database size is the maximum number of files, folders, and projects.

☒ Create Database

Database Name:

Database Size: (minimum: 1000, maximum: 1000000)

Database Users: (minimum: 10, maximum: 1000)

Field	Description
Create Database	Determines whether the wizard will create an AAM universe and database. Default value: checked.
Database Name	The name of the database to create. Default value: AAM.
Database Size	The size of the database in database items. Default value: 10000.
Database Users	The maximum number of users that can access the database at the same time. Default value: 50.
Back	Returns to the Login Information page.
Next	Advances to the next page in the Configuration Wizard.
Finish	Advances to the Configuration Summary page using default settings for audit and data storage partitions.
Cancel	Exits the Configuration Wizard without configuring AAM.

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Application Asset Manager Configuration Wizard

Database Storage Information - Audit Partitions
 Please enter the information requested.

Please enter the number, size, and location for the audit partitions.

Audit Partitions

Number: partitions (minimum: 2, maximum: 10)

Size: MB (minimum: 100 MB, maximum: 2000 MB)

Location:

Field	Description
Number	The number of audit partitions to create. Default value: 2.
Size	The size of each audit partition to create. Default value: 100 MB.
Location	The directory path where the audit partitions will be created. Default value: <Installation directory>\AAM\Db\AAM.
Browse	Displays a dialog that allows the user to browse for a directory. The Location box is updated to the path of the selected directory.
Back	Returns to the Database Information page.
Next	Advances to the next page in the Configuration Wizard.
Finish	Advances to the Configuration Summary page using default settings for data storage partitions.
Cancel	Exits the Configuration Wizard without configuring AAM.

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Application Asset Manager Configuration Wizard

Database Storage Information - Data Partitions
 Please enter the information requested.

Please enter the number, size, and location for the data partitions.

Data Partitions

Number: partitions (minimum: 2, maximum: 20)

Size: MB (minimum: 200 MB, maximum: 2000 MB)

Location:

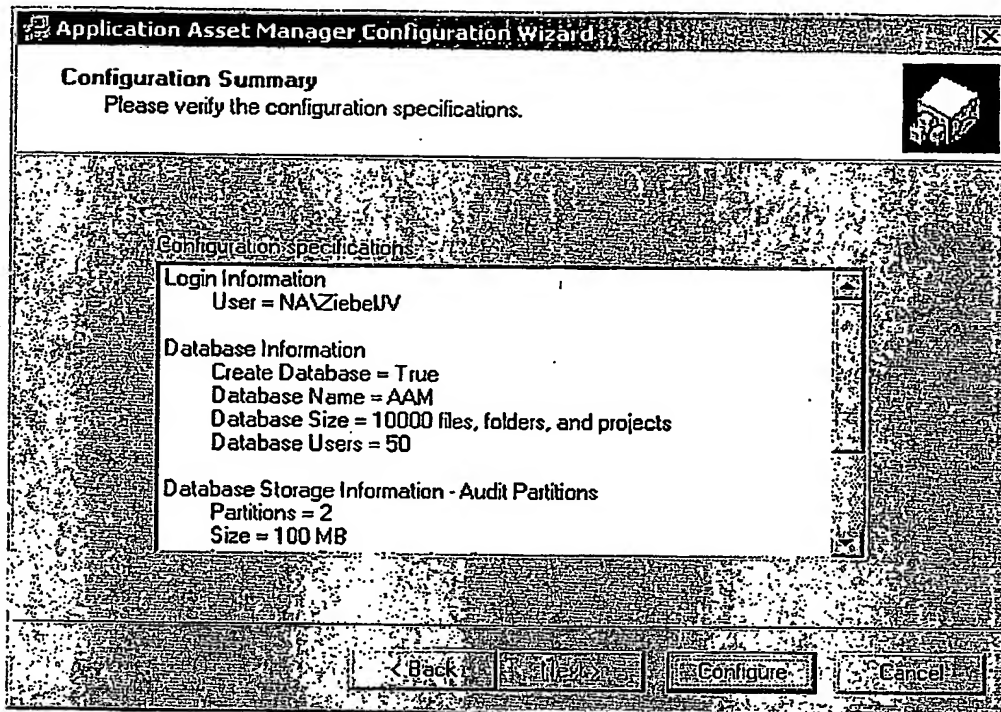
1

Field	Description
Number	The number of data partitions to create. Default value: 2.
Size	The size of each data partition to create. Default value: 100 MB.
Location	The directory path where the data partitions will be created. Default value: <Installation directory>\AAM\Db\AAM.
Browse	Displays a dialog that allows the user to browse for a directory. The Location box is updated to the path of the selected directory.
Back	Returns to the Database Storage Information – Audit Partitions page.
Finish	Advances to the Configuration Summary page.
Cancel	Exits the Configuration Wizard without configuring AAM.

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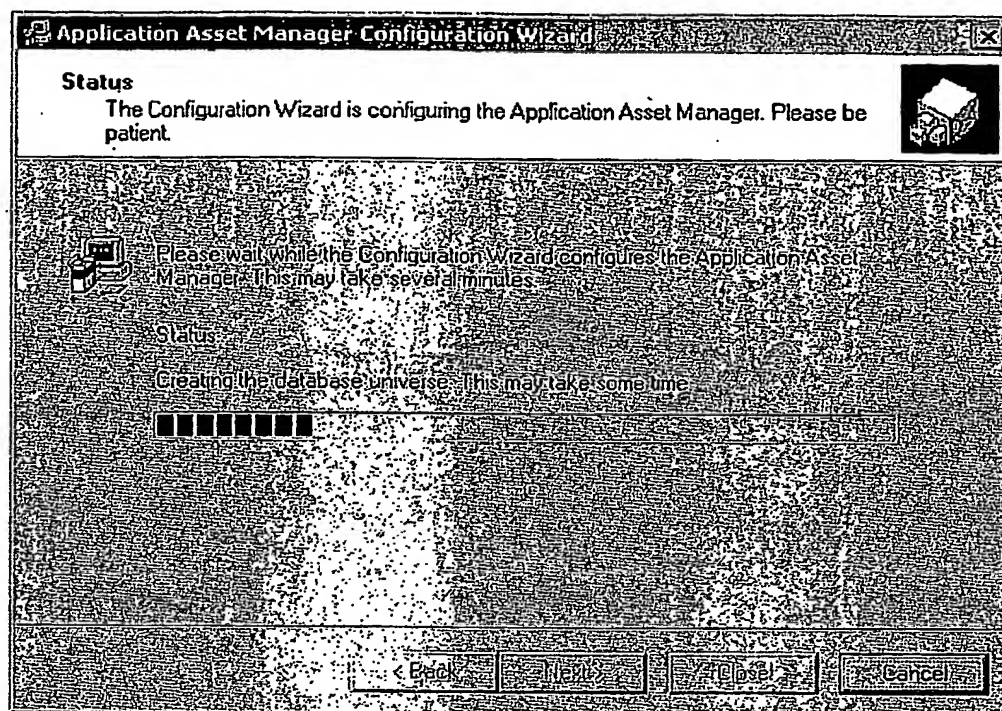
1

Field	Description
Configuration specifications	The list of options specified on the Login Information page, Database Information page, Database Storage Information – Audit Partitions page, and Database Storage Information – Data Partitions page.
Back	Returns to the page displayed before advancing to this page.
Configure	Advances to the Status page and begins the configuration process.
Cancel	Exits the Configuration Wizard without configuring AAM.

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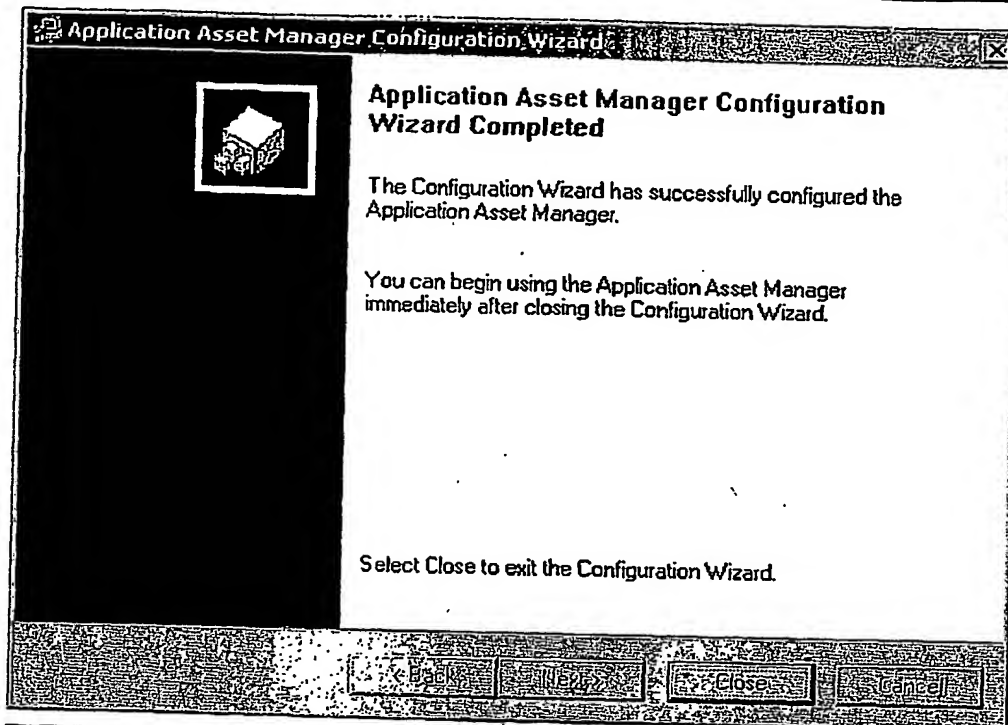
Field	Description
Status	Displays messages that tell the user what part of the configuration is currently underway and updates the progress bar.
Cancel	Aborts the configuration process and exits the Configuration Wizard.

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Field	Description
Close	Exits the Configuration Wizard.

4.1.2. User Manual

Using the Configuration Wizard

Before you begin using the Application Asset Manager, you must run the Configuration wizard. The Configuration wizard enables you to establish your login credentials and to create and size the Application Asset Manager database. As your needs change, you can modify database attributes using the Application Asset Manager Persistence Management snap-in to the Microsoft Management Console (MMC).

Notes:

- If you installed the Application Asset Manager from a Terminal Services session, you must log out of Terminal Services session and log back on before running the Configuration wizard.
- The Configuration wizard requires that you log on using your Windows log on credentials. Validating your log on credentials on Windows 2000 systems requires that your user account have the "Act as part of the operating system" privilege set. You set this privilege through the Administrative Tools of the Windows 2000 operating system. If this privilege is not set for your user account, the Configuration wizard aborts after displaying a message about this situation. After you have successfully configured the Application Asset Manager you may remove this privilege from your user account. The "Act as part of the operating system" privilege is not required in order to use the Application Asset Manager.

Refer to the Application Asset Manager Release Notes for instructions on setting the "Act as part of the operating system" privilege in Windows 2000.

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Perform the following steps to run the Configuration wizard:

1. From the Start menu, select Programs, Unisys, Application Asset Manager, and then Configure.
 The Configuration wizard appears.

2. Choose Next.

The Login Information wizard page appears.

3. Type your Windows user name in the User ID box.

Note: The user name is case-sensitive.

4. Type your Windows password in the Password box.

Note: The password is case-sensitive.

5. Type the domain in which your workstation operates in the Domain Name box.

6. Choose Next.

Note: If the user name, password, or domain name is incorrect, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Login Information wizard page allowing you to correct your login information.

The Database Information wizard page appears.

Note: The Create Database check box is checked when the Database Information wizard page appears. If you are configuring the Application Asset Manager for the first time, this is the correct choice for you because you do need to create a database in order to use the Application Asset Manager. If, however, you are configuring the Application Asset Manager after reinstalling the same version, you may already have a database. If this is the case, you may uncheck the Create Database check box and the Configuration Wizard will complete the configuration without creating a database.

7. If you have checked the Create Database check box, continue at step 8, otherwise, skip to step 19.

8. Type the name of the Application Asset Manager Database to be created in the Database Name box. By default, the database name is AAM.

Note: The database name cannot contain blank characters.

9. Type the number of files, folders, and projects that you intend on storing in the database in the Database Size box. By default, the database size is 10000 files, folders, and projects. The minimum database size is 1000, and the maximum size is 1000000.

Note: If you enter a database size outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Information wizard page allowing you to correct the database size.

10. Type the maximum number of users that will be using the Application Asset Manager at one time in the Database Users box. By default, the maximum number of database users is 50. The maximum number of database users can range from 10 to 1000 users.

Note: If you enter a maximum number of database users outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Information wizard page allowing you to correct the maximum number of database users.

Note: The Database Users box and the Next button will be disabled if you have already created an Application Asset Manager database. All Application Asset Manager databases must have the same maximum number of database users and the same audit and data partitions.

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11. Choose Next to specify database storage settings or skip to step 19 to accept the default or current database storage settings.
- The Database Storage Information – Audit Partitions wizard page appears.
- Note:** An audit partition is a file used to manage database transactions that are in progress. If a transaction is aborted due to an error condition or a user request, the information in the audit partition is used to roll back the transaction to its initial state.
12. Type the number of audit partitions that will be allocated during the configuration of the database in the Number box. By default the number of audit partitions is 2. The minimum number of audit partitions is 2. The maximum number of audit partitions is 10.
- Note:** If you enter a number of audit partitions outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Audit Partitions wizard page allowing you to correct the number of audit partitions.
13. Type the size of an audit partition in the Size box. By default the size of an audit partition is 100 MB. The minimum size of an audit partition is 100 MB. The maximum size of an audit partition is 2000 MB.
- Note:** If you enter a size of an audit partition outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Audit Partitions wizard page allowing you to correct the size of an audit partition.
14. Type or use the Browse button to specify the location of the audit partitions in the Location box.
15. Choose Next.
- Note:** If the total size of the audit partitions and/or the data partitions exceeds the amount of free space on the disk where the audit and/or data partitions will be located, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Audit Partitions wizard page allowing you to correct the number, size and/or location of the audit partitions.
- The Database Storage Information – Data Partitions wizard page appears.
- Note:** A data partition is a file used to store and manage the files, folders, and projects stored in the database.
16. Type the number of data partitions that will be allocated during the configuration of the database in the Number box. By default the number of data partitions is 2. The minimum number of data partitions is 2. The maximum number of data partitions is 20.
- Note:** If you enter a number of data partitions outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Data Partitions wizard page allowing you to correct the number of data partitions.
17. Type the size of a data partition in the Size box. By default the size of a data partition is 200 MB. The minimum size of a data partition is 200 MB. The maximum size of a data partition is 2000 MB.
- Note:** If you enter a size of a data partition outside of the allowed range, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Data Partitions wizard page allowing you to correct the size of a data partition.
18. Type or use the Browse button to specify the location of the data partitions in the Location box.
19. Choose Finish.

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Note: If the total size of the audit partitions and/or the data partitions exceeds the amount of free space on the disk where the audit and/or data partitions will be located, an error message is displayed. When you choose OK on the error message dialog box, the Configuration wizard returns to the Database Storage Information – Data Partitions wizard page allowing you to correct the number, size and/or location of the data partitions.

The Configuration Summary wizard page appears.

20. Verify the information displayed in Configuration Specifications box. If you would like to change any of the information listed in the box, you can use the Back button to return to any wizard page and make the desired correction.

21. Choose Configure.

The Status wizard page appears. A status bar is displayed on the wizard page to monitor the progress of the configuration process.

Note: Be patient. If the Configuration wizard will be creating a new database, the configuration process will take several minutes to complete.

22. Choose Close.

You can now operate the various components of the Application Asset Manager.

Note: You can only run the Configuration wizard once per installation. If you need to adjust database parameters, you can do so using the Application Asset Manager Persistence Management MMC snap-in.

4.2. Menu Commands

4.2.1. Overview

4.2.1.1. Purpose of Interface

In Windows applications, menus are made available to the user to invoke various functions.

4.2.1.2. Functions

The functions are:

- New Server Consolidation Project
- Discovery Wizard
- Discover
- Analysis Properties
- Analyze
- Help for Server Consolidation

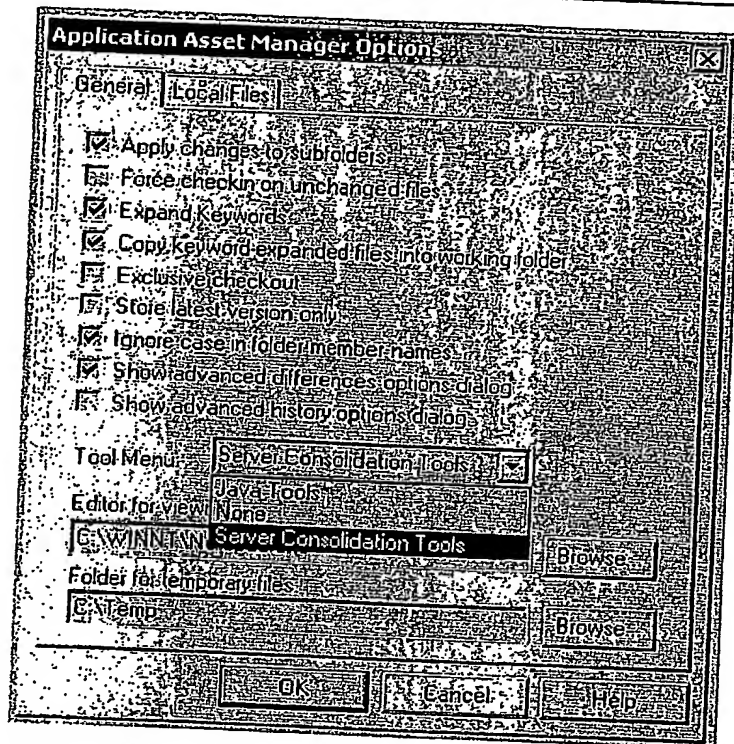
(Requirements T1010, T1049, T1050, T1218, T1220)

4.2.1.3. Form

A Tool Menu combo box will be added to the General Options page, as shown in the next image.

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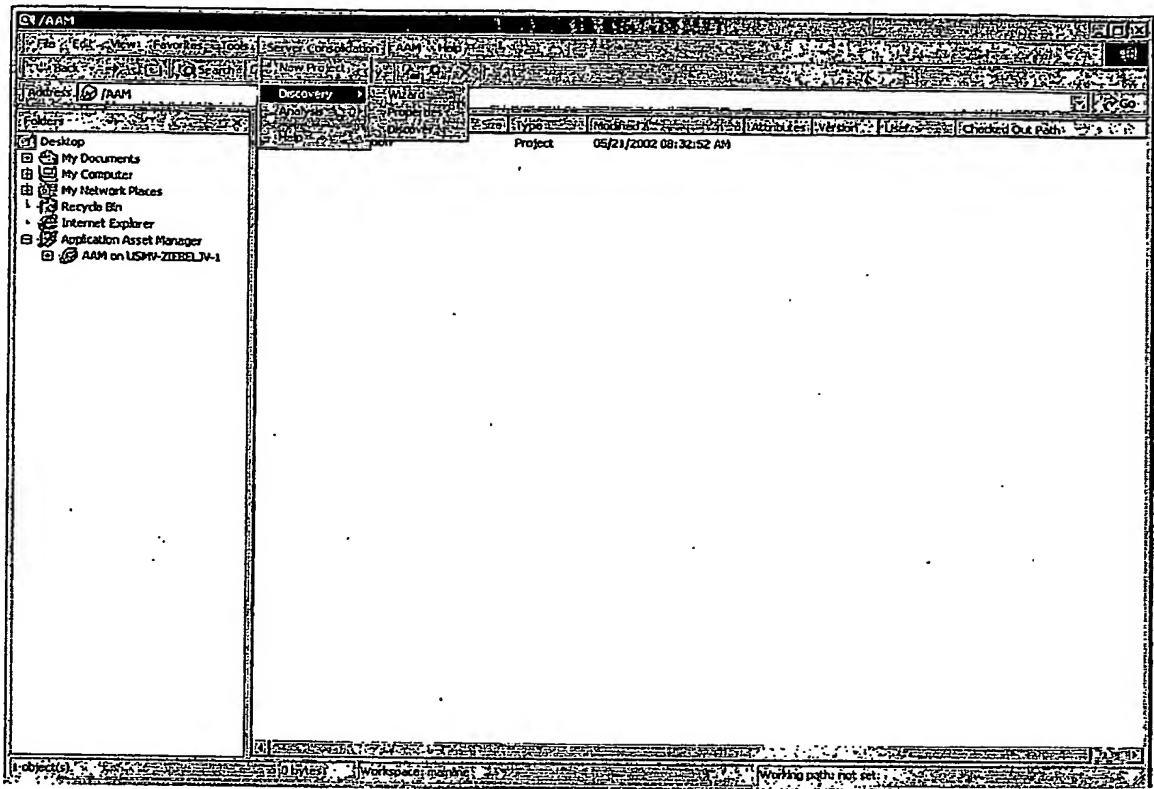


The Tool Menu combo box will show the names of the tool extensions registered on the root folder. If the user selects "None", no menu will be added to the Windows Explorer main menu bar. If the user selects one of the other choices, one menu item with that text will be added to the Windows Explorer main menu bar.

Thus, if the user selects "Server Consolidation Tools" a Server Consolidation Tools menu item will be added to the Windows Explorer main menu bar. The popup menu will contain New Project, Discovery, Analysis, and Help menu items. The Discovery menu item, when selected, displays a submenu containing Wizard and Discover menu items. The Analysis menu item, when selected, displays a submenu containing Properties and Analyze menu items. The following two images show the appearance of the Server Consolidation Tools menu in the Explorer menu bar. The first image shows it with the Discovery submenu selected. The second image shows it with the Analysis submenu selected.

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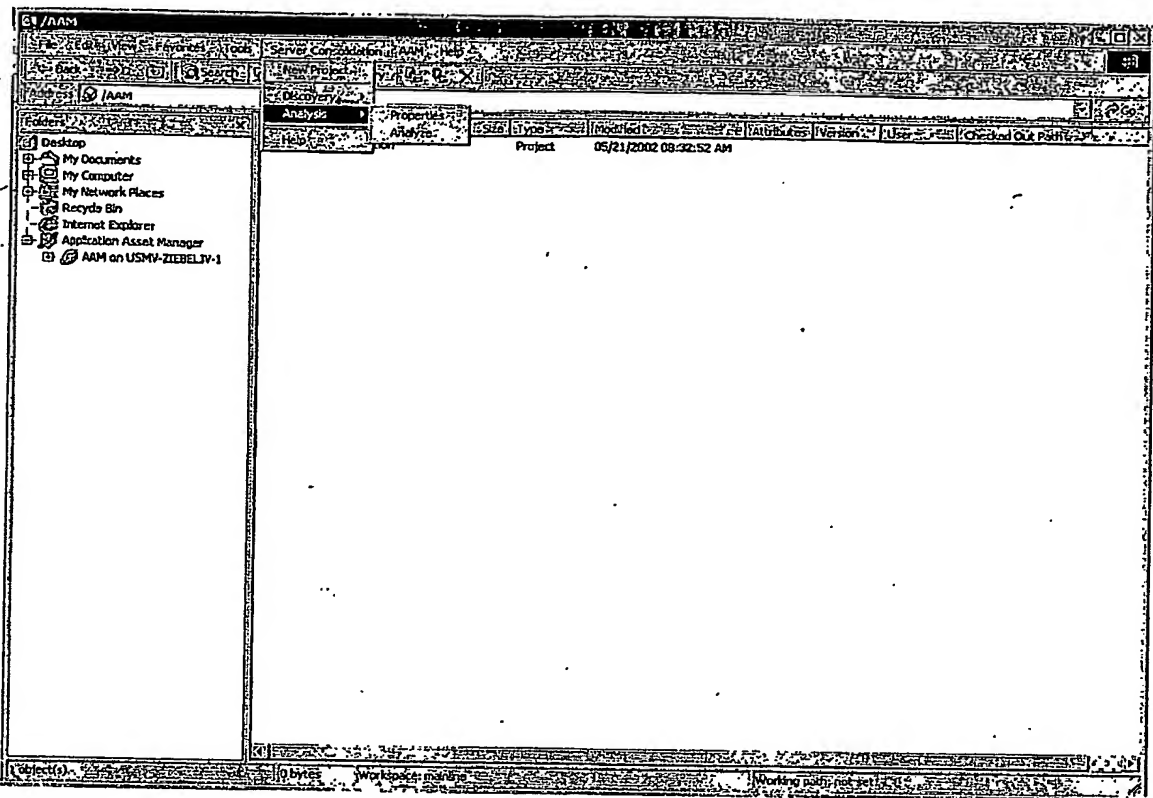
1

Field	Description
New Project	Creates a new Server Consolidation Project in the current folder. Once the user has edited the name for the new project, the Set Working Path dialog will be displayed to give the user the opportunity to set the working path for the project.
Discovery/Wizard	Starts the Discovery Wizard that will guide the user through the steps to configure and run discovery.
Discovery/Properties	Displays the Discovery page in the Properties dialog that allows the user to view and/or modify the discovery execution sequence.
Discovery/Discover	Runs the last saved Discover operation.
Help	Displays online help specific to server consolidation.

2

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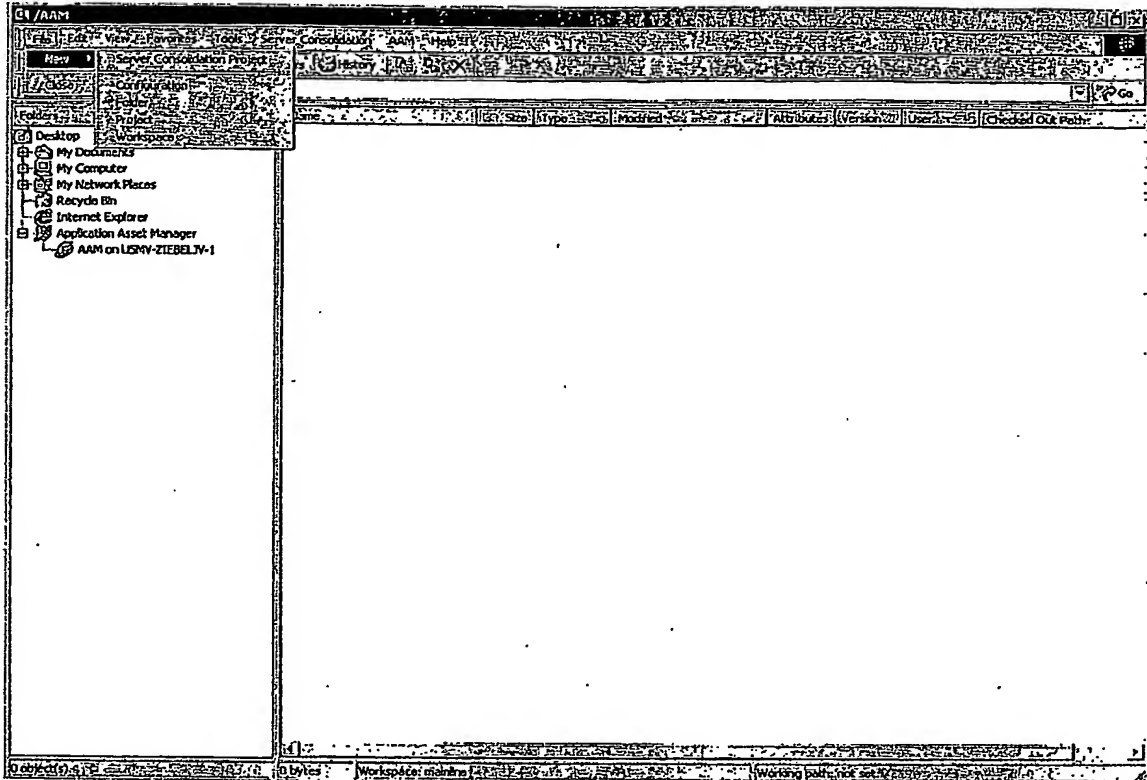
Field	Description
New Project	Creates a new Server Consolidation Project in the current folder. Once the user has edited the name for the new project, the Set Working Path dialog will be displayed to give the user the opportunity to set the working path for the project.
Analysis/Properties	Displays the Analysis page in the Properties dialog that allows the user to view and/or modify the analysis execution sequence.
Analysis/Analyze	Runs the last saved Discover operation.
Help	Displays online help specific to server consolidation.

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 2

A menu item labeled Server Consolidation Project will be added to the File/New menu in the main menu bar and in the list view popup menu as illustrated in the two images below.



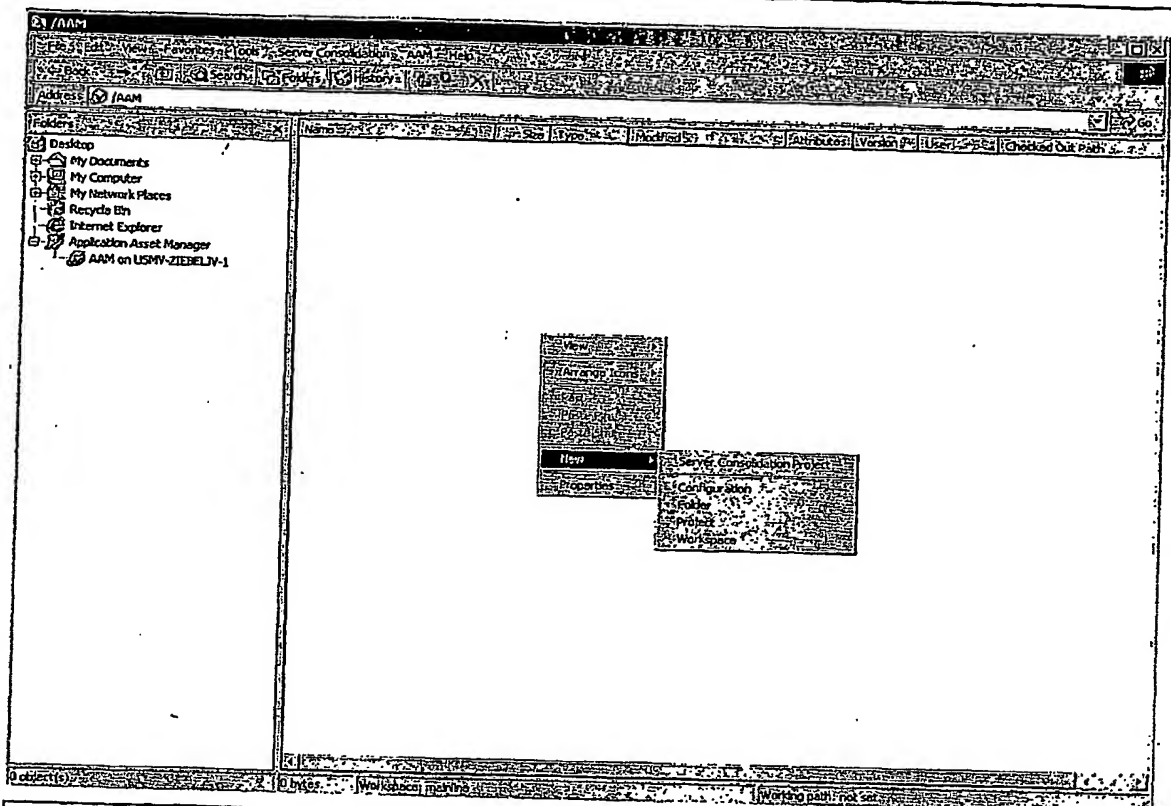
3

Field	Description
New/Server Consolidation Project	Creates a new Server Consolidation Project in the current folder. Once the user has edited the name for the new project, the Set Working Path dialog will be displayed to give the user the opportunity to set the working path for the project.

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Field	Description
New/Server Consolidation Project	Creates a new Server Consolidation Project in the current folder. Once the user has edited the name for the new project, the Set Working Path dialog will be displayed to give the user the opportunity to set the working path for the project.

If the list view is showing the contents of a Server Consolidation Project, and one or more files are selected, the Analyze menu item will be added to the context menu.

4.2.2. User Manual

New Server Consolidation Project: When the user selects the Server Consolidation Tools/New Project menu bar item, or in any other Server Consolidation menus, a new item appears in the list view, labeled "New Server Consolidation Project", and the user can edit the new label, and after editing it, a new server consolidation project is created.

If the user is currently viewing a folder in which server consolidation functionality is available, Server Consolidation Project menu item is added to the File/New submenu, and to the New submenu in the list view context menu.

Wizard: When the user selects the Server Consolidation Tools/Discovery/Wizard menu bar item, the Discovery Wizard starts.

Discover: When the user selects the Server Consolidation Tools/Discovery/Discover menu bar item, the Discover process starts.

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1 **Properties:** When the user selects the Server Consolidation Tools/Analysis/Properties menu bar item, the
2 analysis configuration wizard starts.

3 **Analyze:** When the user selects the Server Consolidation Tools/Analysis/Analyze menu bar item, the
4 analysis process starts on the currently viewed project, or on any objects that are selected in the list view.

5 **Help:** When the user selects the Server Consolidation Tools/Help menu item, help for server consolidation
6 displays.
7

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4.3. Discovery Wizard

4.3.1. Overview

4.3.1.1. Purpose of Interface

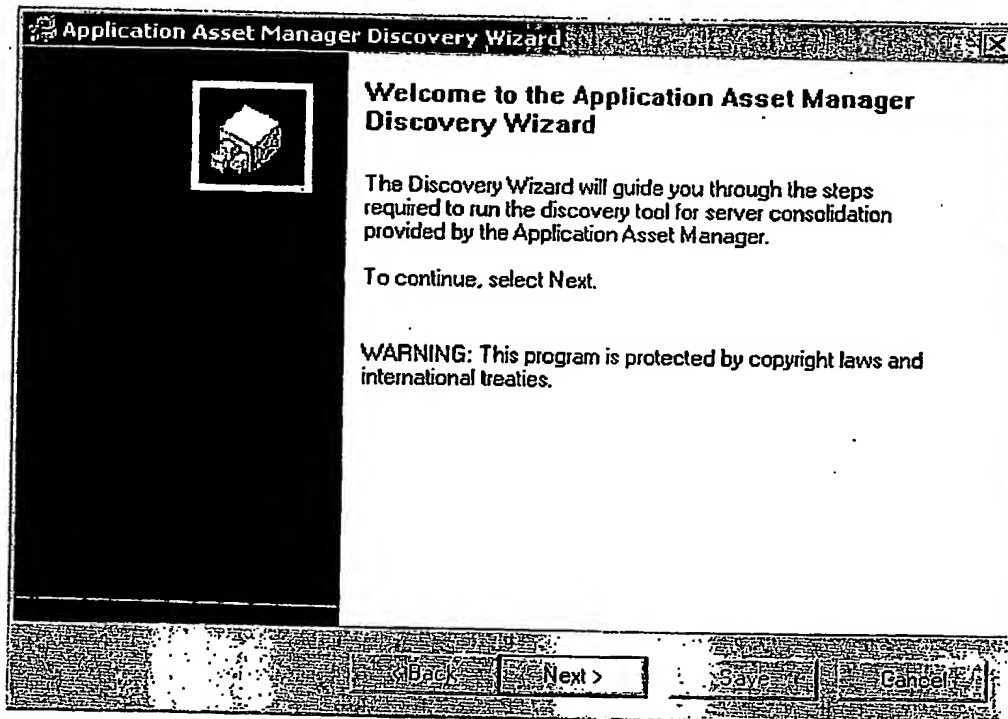
The Discovery Wizard provides the user interface to configure and run Server Consolidation Discovery.

4.3.1.2. Functions

The functions performed by the wizard consist of configuring the discovery command in anyone of five different ways, optionally setting advanced properties and options that control the discovery execution sequence and the database update, and running and/or scheduling the discovery process. (Requirements T1051)

4.3.1.3. Form

The Discovery Wizard will have pages to specify the server(s) to run discovery on, to optionally set advanced properties and options, and to schedule and/or run the discovery operation. A Back button is provided to allow the user to return to any page and make corrections. Each page of the wizard is displayed and described in further detail below.



Field	Description
Next	Advances to the next page in the Discovery Wizard.
Cancel	Exits the Discovery Wizard.

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Application Asset Manager Discovery Wizard

Server Specification
 Discover process information from one or more servers.

Choose one of the following methods of server specification:

- ☒ Server by Host Name
- ☐ Servers by Host List
- ☐ Servers by TCP/IP Subnet
- ☐ Servers by Site Name
- ☐ Servers by Domain Name

Back Next Save Cancel

Field	Description
Server by Host Name	Selects the wizard page for single server discovery.
Servers by Host List	Selects the wizard page for multiple server discovery using a host list file.
Servers by TCP/IP Subnet	Selects the wizard page for multiple server discovery using a TCP/IP subnet.
Servers by Site Name	Selects the wizard page for multiple server discovery using a Site Name.
Servers by Domain Name	Selects the wizard page for multiple server discovery using a Domain Name.
Back	Returns to the Welcome page.
Next	Advances to the page selected on this page.
Cancel	Exits the Discovery Wizard.

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Application Asset Manager Discovery Wizard

Server by Host Name
 Discover process information from a single server.

Please enter the host name, user name, and password.

The user name must be specified as Domain\User ID

Host Name:

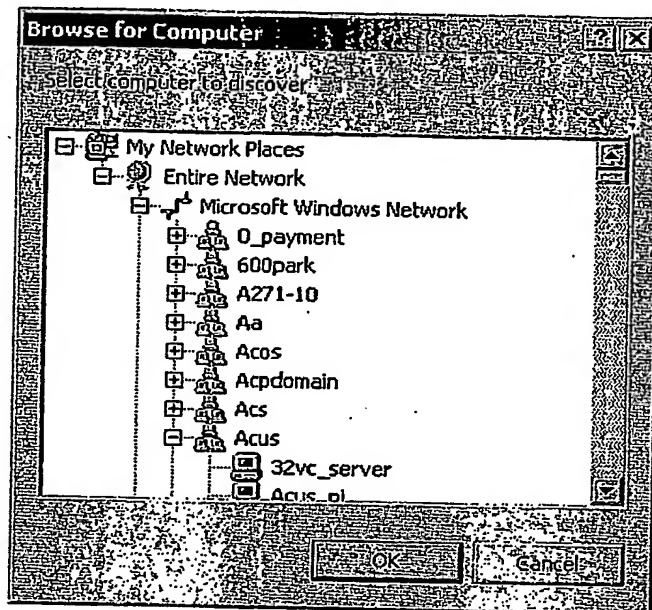
User Name:

Password:

Field	Description
Host Name	The name of the server to run discovery on.
Browse	Displays the Browse for Computer dialog that allows the user to select a server from a list of available servers on the network.
User Name	A valid Windows user domain name and user ID on the server.
Password	The Windows login password for the user name on the server.
Back	Returns to the Server Specification page.
Save	Saves the discovery command and advances to the Advanced Options page.
Cancel	Exits the Discovery Wizard.

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Field	Description
Select computer to discover	Select desired server from hierarchy of network domains and servers.
OK	Close the dialog and selects the currently highlighted server. OK is only enabled if currently selected item is a server.
Cancel	Close the dialog without selecting a server.

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Application Asset Manager Discovery Wizard

Host List File
 Discover process information for servers using an existing list of host names or a new list of host names.

Open an existing host list file, or choose Next to create a new host list file.

☒ Open Host List File

C:\discovery\hostList.csv

Field	Description
Open Host List File	Determines whether to open an existing host list file or create a new host list file.
Host List File Box	If Open Host List File is checked, the user can type the full path name of a host list file.
Browse	If Open Host List File is checked, the user can browse for a host list file. The selected file is displayed in the Host List File Box.
Back	Returns to the Server Specification page.
Next	Advances to the next page in the Discovery Wizard.
Cancel	Exits the Discovery Wizard.

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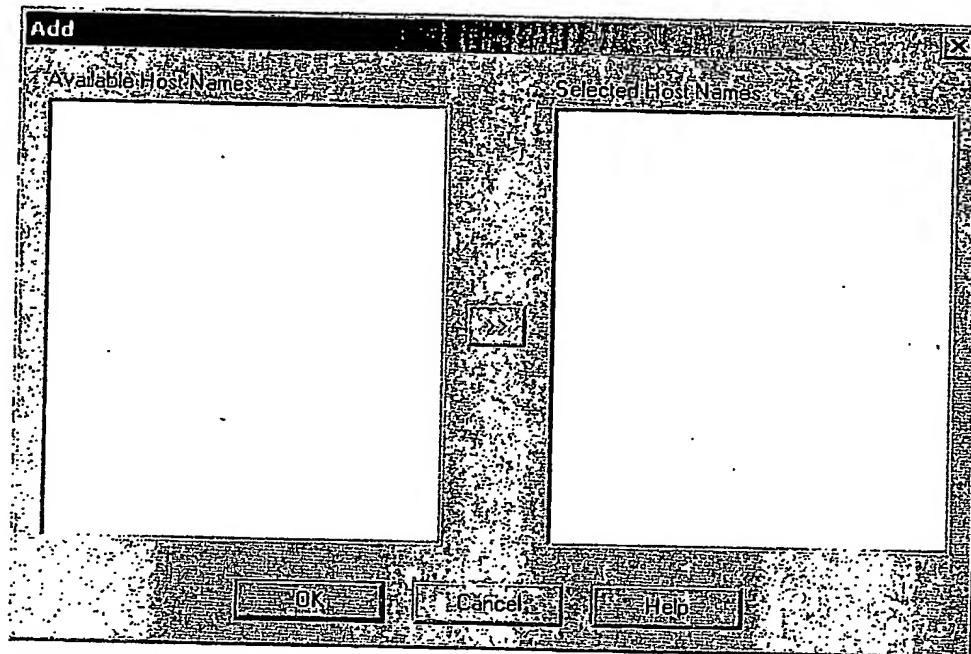
Servers by Host List
 Discover process information from a list of servers specified in a host list file.

Host Name	User Name	Password
US-FILESERVER-1	XS\SmithJT	DoeJA1

Field	Description
Host List	The name of the server to run discovery on.
Add	Displays the Add dialog that allows the user to add one or more servers to the host list.
Edit	Displays the Edit dialog that allows the user to edit the selected server items from the host list. If more than one server is selected from the host list, only the user ID and password can be modified.
Remove	Removes the selected servers from the host list.
Select All	Selects all the servers in the host list.
Back	Returns to the Host List File page.
Save	Saves the discovery command and the host list file, then advances to the Advanced Options page.
Cancel	Exits the Discovery Wizard.

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Field	Description
Available Host Names	The name of the server to run discovery on.
Selected Host Names	Displays a dialog that allows the user to select a server from a list of available servers on the network.
Move (>>)	If one or more servers are selected from the Available Host Names list, pushing this button moves the selected servers to the Selected Host Names list.
Move (<<)	If one or more servers are selected from the Selected Host Names list, pushing this button moves the selected servers to the Available Host Names list.
OK	Adds the Selected Host Names to the host list and returns to the Servers by Host List page.
Cancel	Cancels the Add operation and returns to the Servers by Host List page.

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Field	Description
Host Name	The name of the server to run discovery on. Disabled if more than one server was selected from the host list.
Browse	Displays a dialog that allows the user to select a server from a list of available servers on the network. Disabled if more than one server was selected from the host list.
User Name	A valid Windows user domain name and user ID on the server(s).
Password	The Windows login password for the user name on the server(s).
OK	Modifies the selected server(s) from the host list and returns to the Servers by Host List page.
Cancel	Cancels the Edit operation and returns to the Servers by Host List page.

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Servers by TCP/IP Subnet
 Discover process information from all servers on the same TCP/IP subnet.

Please enter the TCP/IP subnet, username, and password.

The user name must be specified as Domain\User ID.

TCP/IP Subnet:

User Name:

Password:

< Back Next > Save Cancel

Field	Description
TCP/IP Subnet	The TCP/IP Subnet of the servers to run discovery on.
User Name	A valid Windows user domain name and user ID on the servers.
Password	The Windows login password for the user name on the servers.
Back	Returns to the Server Specification page.
Save	Saves the discovery command and advances to the Advanced Options page.
Cancel	Exits the Discovery Wizard.

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Application Asset Manager Discovery Wizard

Servers by Site Name
 Discover process information from all servers in the same site.

Please enter the site name, user name, and password.

The user name must be specified as Domain\User ID

Site Name:

User Name:

Password:

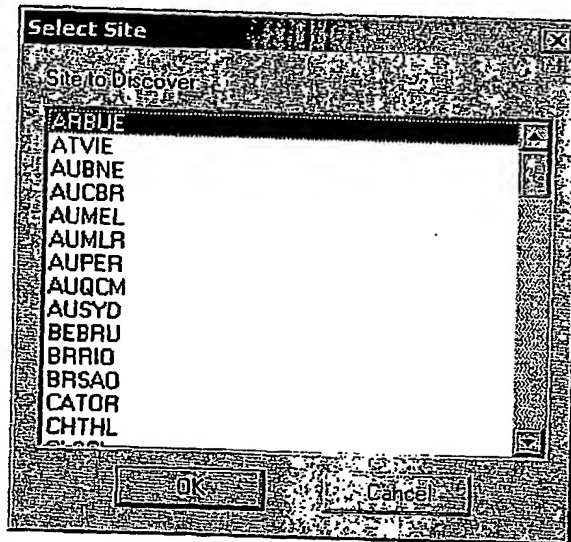
< Back

Field	Description
Site Name	The site name of the servers to run discovery on.
Browse	Displays the Select a Site dialog that allows the user to select a site name from a list of available site names on the network.
User Name	A valid Windows user domain name and user ID on the servers.
Password	The Windows login password for the user name on the servers.
Back	Returns to the Server Specification page.
Save	Saves the discovery command and advances to the Advanced Options page.
Cancel	Exits the Discovery Wizard.

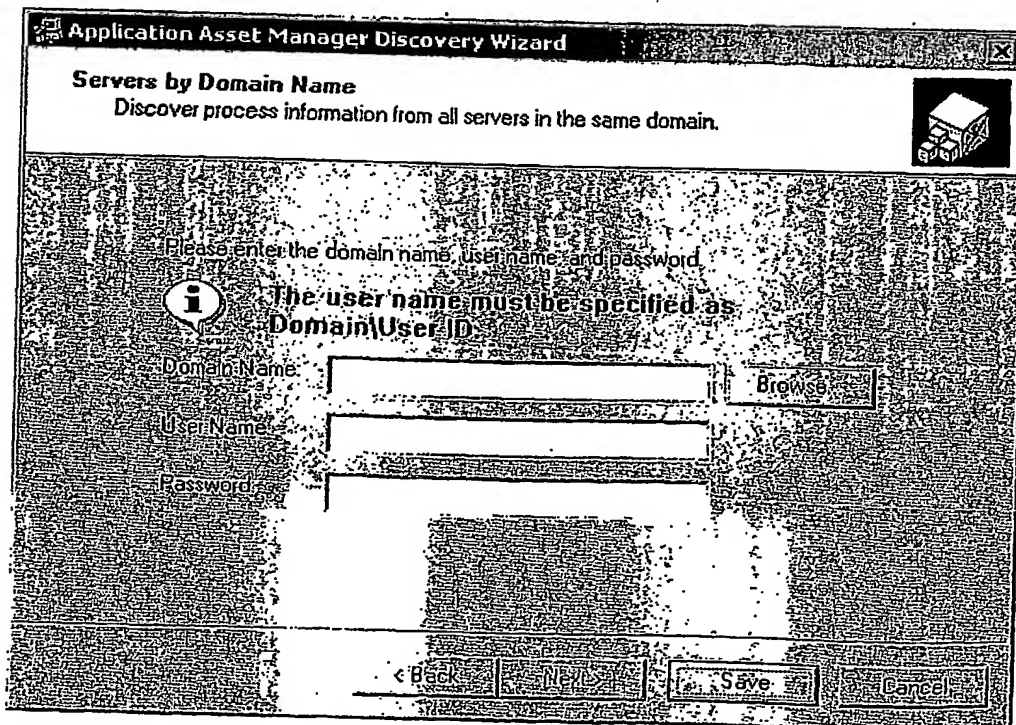
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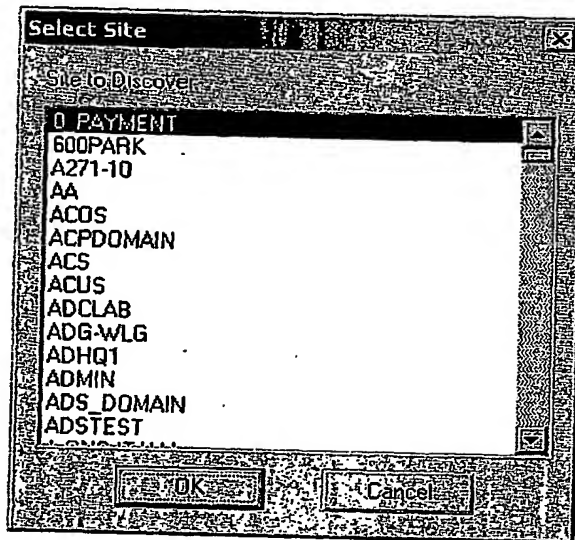
Field	Description
Site to Discover	Select desired site from list of available sites.
OK	Close the dialog and select the currently highlighted site.
Cancel	Close the dialog without selecting a site.



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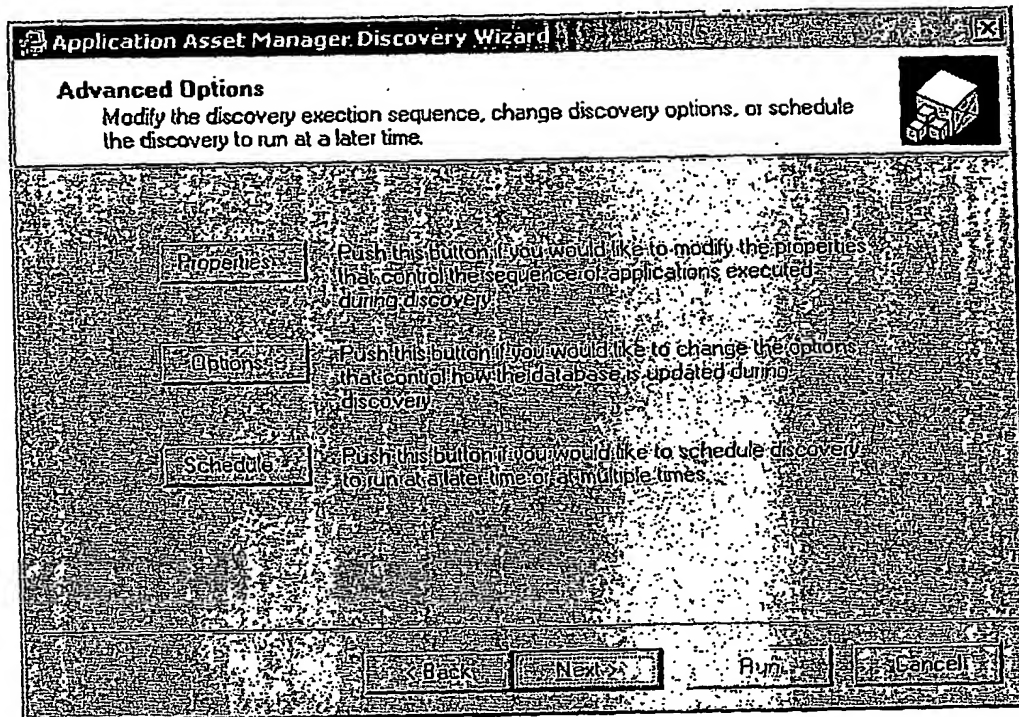
Field	Description
Domain Name	The domain name of the servers to run discovery on.
Browse	Displays the Select a Domain dialog that allows the user to select a domain name from a list of available domains on the network.
User Name	A valid Windows user domain name and user ID on the servers.
Password	The Windows login password for the user name on the servers.
Back	Returns to the Server Specification page.
Save	Saves the discovery command and advances to the Advanced Options page.
Cancel	Exits the Discovery Wizard.



Field	Description
Domain to Discover	Select desired domain from list of available domains.
OK	Close the dialog and select the currently highlighted domain.
Cancel	Close the dialog without selecting a domain.

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Field	Description
Properties	Displays the Discovery page in the Properties dialog box.
Options	Displays the Discover dialog box.
Schedule	Displays the Task Scheduler dialog box.
Back	Returns to the previous page.
Next	Advances to the next page in the Discovery Wizard.
Cancel	Exits the Discovery Wizard.

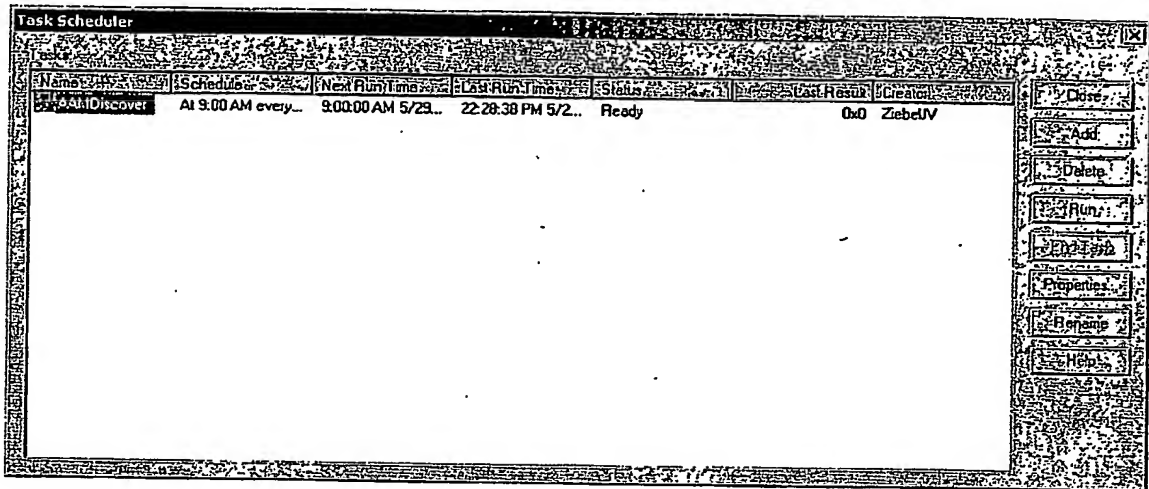
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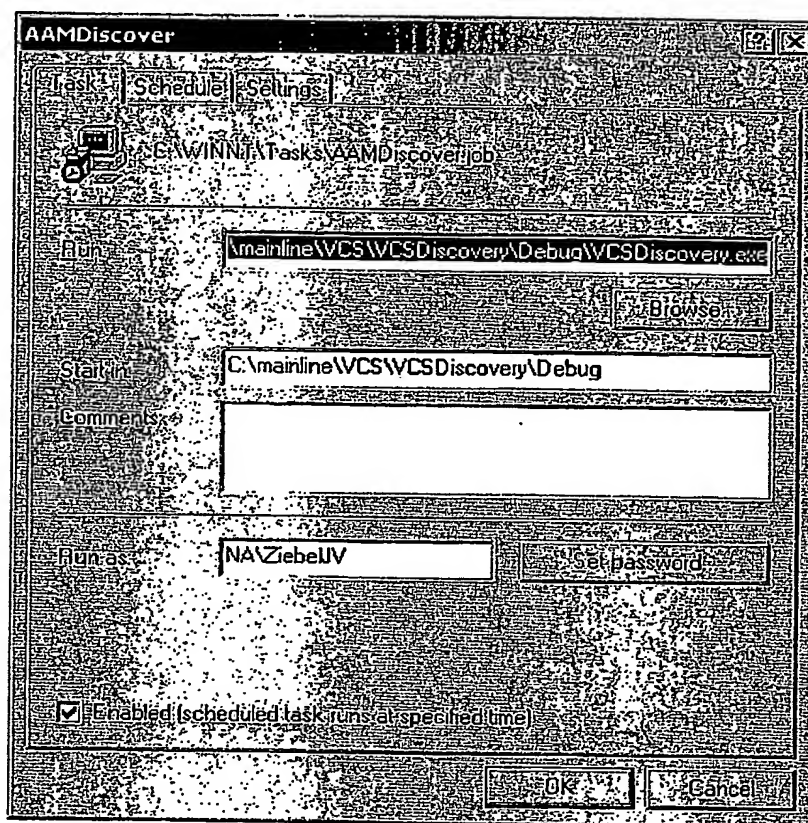
Field	Description
Tasks	The list of discovery and deployment tasks currently scheduled.
Close	Closes this dialog box.
Add	Creates a new task and displays "New Task" in the task list. An edit box is enabled to allow the user to change the name of the task.
Delete	Removes the selected task from the schedule.
Run	Executes the selected task.
End Task	Aborts the selected task.
Properties	Displays the Properties dialog.
Rename	Enables an edit box for the selected task.
Help	Displays help for this dialog.

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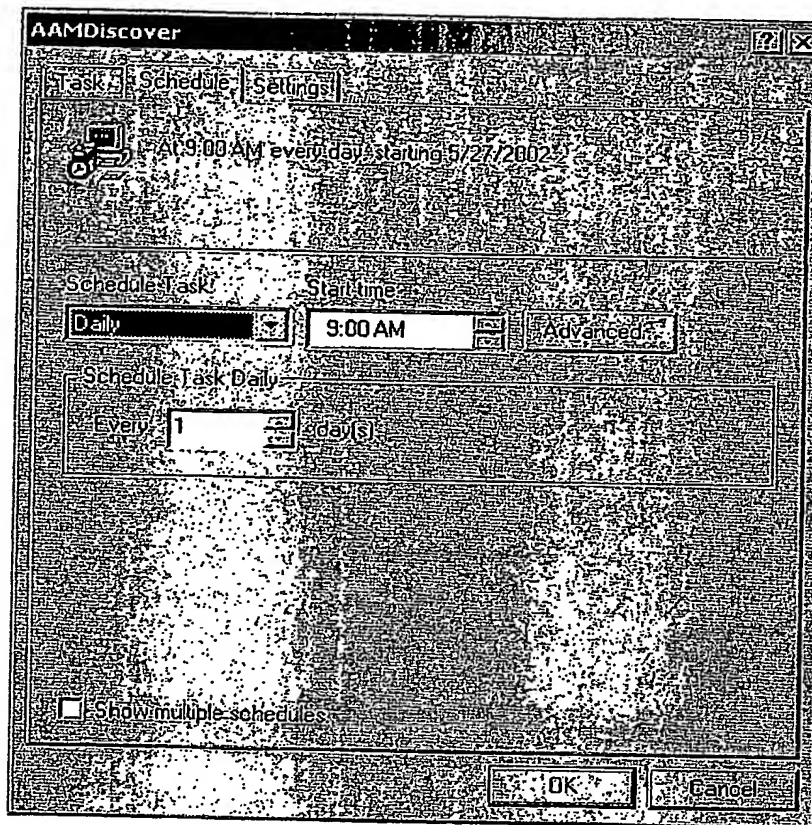
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This is the Properties dialog box that is displayed when the properties item is selected from the context menu or the user chooses the properties button. The three pages on this dialog are taken directly from Microsoft's Task scheduler so no further documentation will be provided in this specification. The Schedule and Settings pages are displayed below.

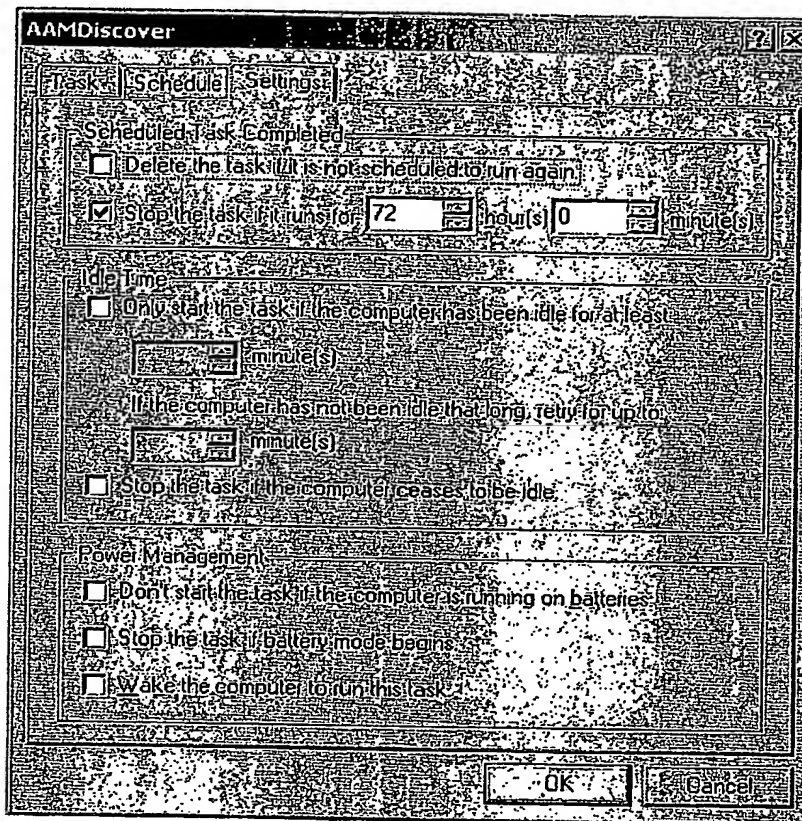
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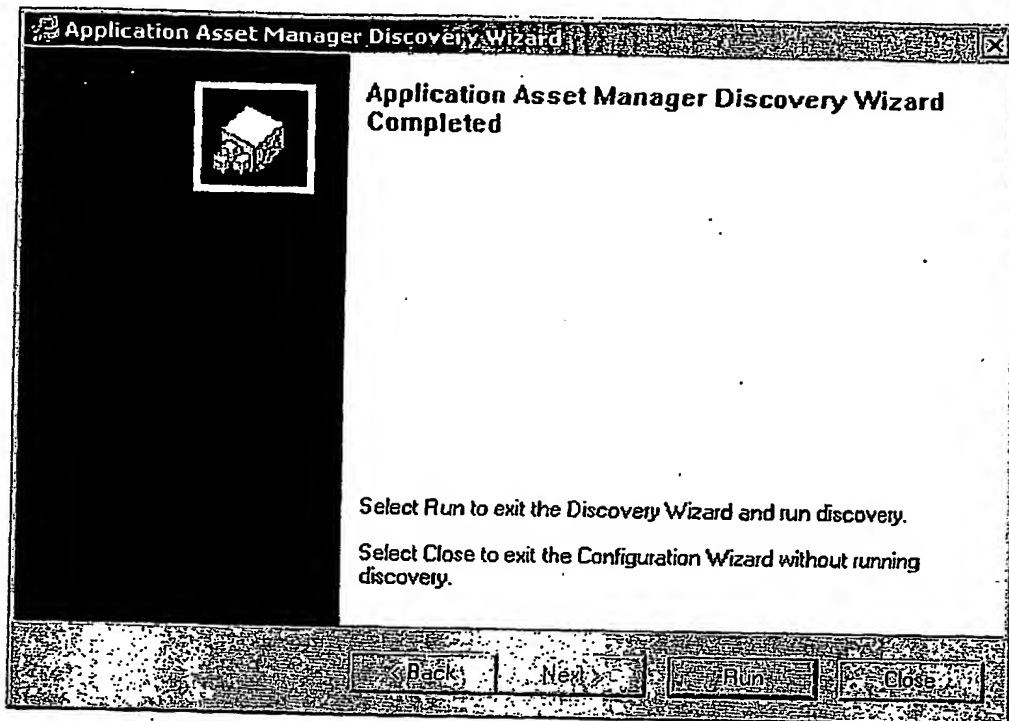
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Type: Functional Design Specification
Owner: Jonathan Ziebell

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Field	Description
Back	Returns to the Advanced Options page.
Run	Exits the Discovery Wizard and runs the discovery command.
Close	Exits the Discovery Wizard.

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4.4. Discovery Properties

4.4.1.1. Purpose of Interface

The Discovery page in the Properties dialog box provides the user interface for viewing and modifying the discovery execution sequence.

4.4.1.2. Functions

The functions available on the dialog consist of "Move Item Up", "Move Item Down", "Add", "Edit", "Remove", "OK", "Cancel", and "Help". These functions are described in the table below the image of the Discovery page. (Requirements T1011)

4.4.1.3. Form

The Discovery page in the Properties dialog box will have a list control to display the execution sequence, buttons to add, edit, or remove applications in the execution sequence, and edit boxes to display the currently selected application in the execution sequence. The Add and Edit buttons, when selected, will display an Add Application dialog box and an Edit Application dialog box. The Discovery page, Add Application dialog box, and Edit Application dialog box are displayed and described in further detail below.

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DAC_srv Properties

Project | Links | Labels | Extensions | Event Triggers | Custom | Discovery

Execution Sequence

Label: ☒ Process Discovery Continue Stop 0

Add Edit Remove

Application

Path Name: C:\WIN92APP\AAM\bin\psexec.exe

Parameters: Application Name: \\NUS-HILSESERVER-1\USmith\T.pDedAT-1
 Working Path: procexp

Description: Discovers information about processes running on the designated computer(s)

Description:

OK Cancel Help

Field	Description
Execution Sequence	<p>The list of application that will be executed during discovery. A label represents each application in the execution sequence. Selecting a label displays the details about the application in the Application group box. The execution sequence also displays the exit codes that indicate the application ran successfully and the labels that indicate what to do if the application passes or fails. The permitted labels are Continue, Repeat, Stop, or an application label for another application in the execution sequence.</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Application Label: Runs the application with the designated label.
Up Arrow Button	Moves the selected application up one in the execution sequence.

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Down Arrow Button	Moves the selected application down one in the execution sequence.
Add	Displays the Add Application dialog box. The execution sequence is updated upon return from the Add Application dialog box. The new application, if any, is added to the end of the execution sequence.
Edit	Displays the Edit Application dialog box and initializes the dialog box with the selected application in the execution sequence. The execution sequence is updated upon return from the Edit Application dialog box.
Remove	Removes the selected application from the execution sequence.
Application Path Name	The full path name of the selected application in the execution sequence.
Application Parameters	The parameters for the selected application in the execution sequence.
Application Description	The description of the selected application in the execution sequence.
Description	The description of the execution sequence.
OK	Save the execution sequence in the database and exits the Properties dialog box.
Cancel	Exits the Properties dialog box without saving the execution sequence.
Help	Provides online help for the Discovery page.

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Edit Application

Label: Process Discovery

Path Name: C:\WIN32APP\AAM\bin\psexec.exe Browse...

Parameters: _applicationName_ \\\US-FILESERVER-1 -uSmithJT -pDoalA1 -f -c -w _workingPath_ procexp

Description: Discovers information about processes running on the designated computer(s).

Result Handler:

Pass Code: 0

On Pass: Continue On Fail: Stop

OK Cancel Help

Field	Description
Label	The label that represents the application.
Path Name	The full path name of the application.
Browse	Displays a dialog box that allows the user to browse for an application. The Path Name box is updated with the specified file, if any.
Parameters	<p>The parameters for this application. The parameters can include macro names that are expanded to their value at the time the application is executed. The following macros are permitted:</p> <ul style="list-style-type: none"> • <code>_applicationName_</code>: The full path name of the application. • <code>_fileNames_</code>: The list of files copied to the destination directory before discovery. • <code>_workingPath_</code>: The source and destination for discovery. • <code>_exitCode_</code>: The exit code of the application executed just prior to this application.
Description	The description for this application.
Result Handler Pass Codes	A comma separated list of integer values that represent all the exit codes that can be returned by this application to indicate success. The list may include ranges with the bounds of a range are joined by two decimal points ("..").
Result Handler On Pass	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application passed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence.

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	<ul style="list-style-type: none"> • Other application labels: Runs the application with the designated label.
Result Handler On Fail	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application failed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Other application labels: Runs the application with the designated label.
OK	Exits the dialog box and updates the application in the execution sequence.
Cancel	Exits the dialog box without updating the application.
Help	Provides online help for this dialog box.

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Add Application

Label:

Path Name:

Parameters:

Description:

Result Handler:

Pass Codes:

On Pass:

Field	Description
Label	The label that represents the application.
Path Name	The full path name of the application.
Browse	Displays a dialog box that allows the user to browse for an application. The Path Name box is updated with the specified file, if any.
Parameters	<p>The parameters for this application. The parameters can include macro names that are expanded to their value at the time the application is executed. The following macros are permitted:</p> <ul style="list-style-type: none"> • <code>__applicationName__</code>: The full path name of the application. • <code>__fileNames__</code>: The list of files copied to the destination directory before discovery. • <code>__workingPath__</code>: The source and destination for discovery. • <code>__exitCode__</code>: The exit code of the application executed just prior to this application.
Description	The description for this application.
Result Handler Pass Codes	A comma separated list of integer values that represent all the exit codes that can be returned by this application to indicate success. The list may include ranges with the bounds of a range are joined by two decimal points ("..").
Result Handler On Pass	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application passed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence.

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	<ul style="list-style-type: none"> • Other application labels: Runs the application with the designated label.
Result Handler On Fail	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application failed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Other application labels: Runs the application with the designated label.
OK	Exits the dialog box and appends the application to the end of the execution sequence. The OK button is enabled when the Label, Path Name, and Result Handler boxes all contain non-empty values.
Cancel	Exits the dialog box without updating the application.
Help	Provides online help for this dialog box.

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4.5. Analysis Properties

4.5.1.1.Purpose of Interface

The Analysis page in the Properties dialog box provides the user interface for viewing and modifying the analysis execution sequence.

4.5.1.2.Functions

The functions available on the dialog consist of "Move Item Up", "Move Item Down", "Add", "Edit", "Remove", "OK", "Cancel", and "Help". These functions are described in the table below the image of the Analysis page. (Requirements T1011, T1217)

4.5.1.3.Form

The Analysis page in the Properties dialog box will have a list control to display the execution sequence, buttons to add, edit, or remove applications in the execution sequence, and edit boxes to display the currently selected application in the execution sequence. The Add and Edit buttons, when selected, will display an Add Application dialog box and an Edit Application dialog box. The Analysis page, Add Application dialog box, and Edit Application dialog box are displayed and described in further detail below.

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Server Consolidation Properties

Configuration | Links | Extensions | Event Triggers | Custom | Analyst

Execution Sequence

Label	On Pass	On Fail	Pass Code
<input checked="" type="checkbox"/> Analyze	Continue	Stop	0

Add Edit Remove

Application

Path Name: C:\Win32app\AAM\bin\Analysis.exe

Parameters: %*filenames

Description: Provides query and report capabilities for process discovery data.

Description:

OK Cancel Help

Field	Description
Execution Sequence	<p>The list of application that will be executed during analysis. A label represents each application in the execution sequence. Selecting a label displays the details about the application in the Application group box. The execution sequence also displays the exit codes that indicate the application ran successfully and the labels that indicate what to do if the application passes or fails. The permitted labels are Continue, Repeat, Stop, or an application label for another application in the execution sequence.</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Application Label: Runs the application with the designated label.
Up Arrow Button	Moves the selected application up one in the execution sequence.

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Down Arrow Button	Moves the selected application down one in the execution sequence.
Add	Displays the Add Application dialog box. The execution sequence is updated upon return from the Add Application dialog box. The new application, if any, is added to the end of the execution sequence.
Edit	Displays the Edit Application dialog box and initializes the dialog box with the selected application in the execution sequence. The execution sequence is updated upon return from the Edit Application dialog box.
Remove	Removes the selected application from the D
Application Path Name	The full path name of the selected application in the execution sequence.
Application Parameters	The parameters for the selected application in the execution sequence.
Application Description	The description of the selected application in the execution sequence.
Description	The description of the execution sequence.
OK	Save the execution sequence in the database and exits the Properties dialog box.
Cancel	Exits the Properties dialog box without saving the execution sequence.
Help	Provides online help for the Analysis page.

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Edit Application

Label:

Path Name:

Parameters:

Description:

Result Handler Pass Codes:

On Pass:

On Fail:

Field	Description
Label	The label that represents the application.
Path Name	The full path name of the application.
Browse	Displays a dialog box that allows the user to browse for an application. The Path Name box is updated with the specified file, if any.
Parameters	<p>The parameters for this application. The parameters can include macro names that are expanded to their value at the time the application is executed. The following macros are permitted:</p> <ul style="list-style-type: none"> • <code>__applicationName__</code>: The full path name of the application. • <code>__fileNames__</code>: The list of files copied to the destination directory before analysis. • <code>__workingPath__</code>: The source and destination for analysis. • <code>__exitCode__</code>: The exit code of the application executed just prior to this application.
Description	The description for this application.
Result Handler Pass Codes	A comma separated list of integer values that represent all the exit codes that can be returned by this application to indicate success. The list may include ranges with the bounds of a range are joined by two decimal points ("..").
Result Handler On Pass	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application passed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence.

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	<ul style="list-style-type: none"> • Other application labels: Runs the application with the designated label.
Result Handler On Fail	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application failed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Other application labels: Runs the application with the designated label.
OK	Exits the dialog box and updates the application in the execution sequence.
Cancel	Exits the dialog box without updating the application.
Help	Provides online help for this dialog box.

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Field	Description
Label	The label that represents the application.
Path Name	The full path name of the application.
Browse	Displays a dialog box that allows the user to browse for an application. The Path Name box is updated with the specified file, if any.
Parameters	<p>The parameters for this application. The parameters can include macro names that are expanded to their value at the time the application is executed. The following macros are permitted:</p> <ul style="list-style-type: none"> • <code>__applicationName__</code>: The full path name of the application. • <code>__fileNames__</code>: The list of files copied to the destination directory before analysis. • <code>__workingPath__</code>: The source and destination for analysis. • <code>__exitCode__</code>: The exit code of the application executed just prior to this application.
Description	The description for this application.
Result Handler Pass Codes	A comma separated list of integer values that represent all the exit codes that can be returned by this application to indicate success. The list may include ranges with the bounds of a range are joined by two decimal points ("..").
Result Handler On Pass	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application passed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence.

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	<ul style="list-style-type: none"> • Other application labels: Runs the application with the designated label.
Result Handler On Fail	<p>A label designating the place in the execution sequence to jump to after exiting from this application with an exit code that indicates the application failed. The dropdown list contains the following labels:</p> <ul style="list-style-type: none"> • Continue: Runs the next application in the sequence. • Repeat: Reruns the current application in the sequence. • Stop: Aborts the execution sequence. • Other application labels: Runs the application with the designated label.
OK	Exits the dialog box and appends the application to the end of the execution sequence. The OK button is enabled when the Label, Path Name, and Result Handler boxes all contain non-empty values.
Cancel	Exits the dialog box without updating the application.
Help	Provides online help for this dialog box.

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4.6. Discover Dialog

4.6.1. Overview

4.6.1.1. Purpose of Interface

The Discover Dialog Box provides the user interface for performing the Discover operation including selection of which projects are to be discovered as well as setting various discover options.

4.6.1.2. Functions

The functions available on the dialog consist of standard 'OK', 'Cancel', 'Select All', and 'Help' buttons where 'OK' will perform the discovery using the settings from the tab control described below. 'Cancel' will cancel the operation and 'Select All' highlights all items in the 'Items to be discovered' list. 'Help' will bring up the Application Asset manager Help window for Discover. There will also be a 'Schedule' button that will allow the user to schedule discovery. (Requirements T1054, T1219)

4.6.1.3. Form

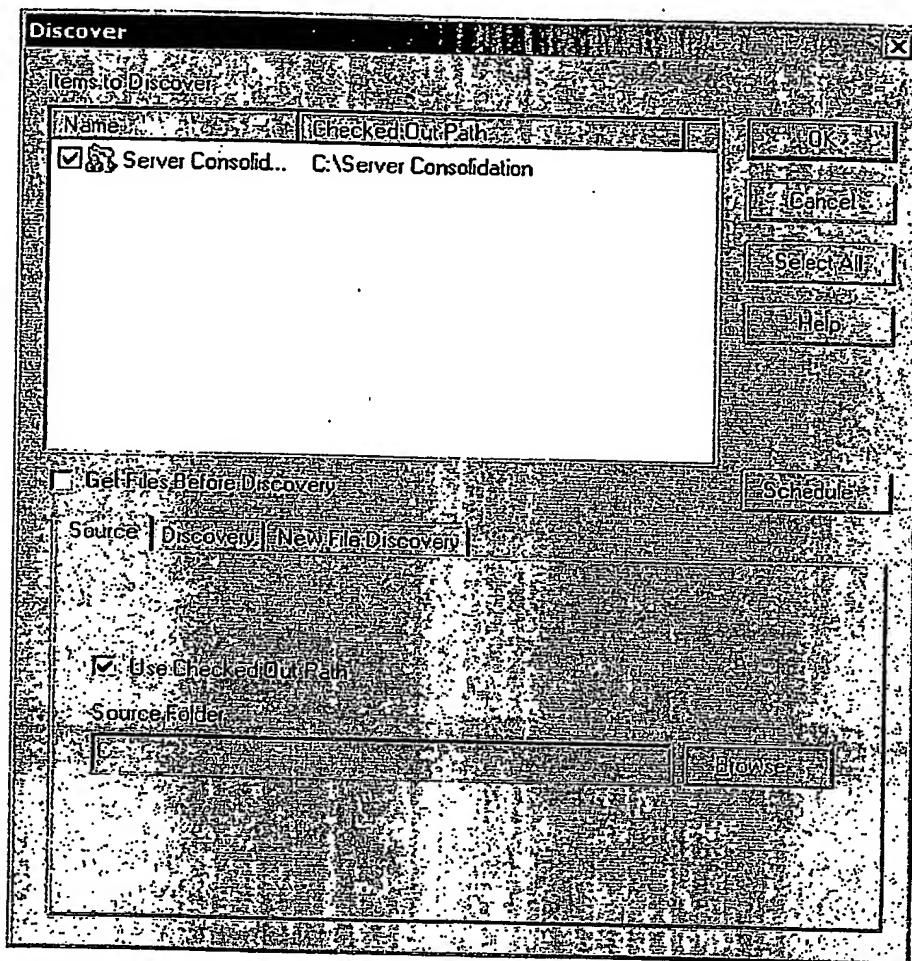
The Discover Dialog Box will have similar size and the same general look as the Checkout or Checkin dialogs. That is, it will consist of a listview at the top-left with function buttons at the top-right and various controls for operation settings below. The listview contains all applicable items that were selected when the user chose the 'Discover' menu command. Initially all items will be checked but individual items may be checked or unchecked to indicate whether they should be discovered. Only checked items will be discovered. The Discover Dialog will contain a tabbed control with up to four tabbed pages. Each page contains options related to a specific aspect of the Discover operation and are described in further detail below.

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Field	Description
Items to Discover	The list of items to discover.
Select All	Highlight each item in the list box.
Get Files Before Discovery	If checked, files will be retrieved from the database before the discovery process sequence is run.
Schedule	When clicked, the Task Scheduler Dialog will be displayed allowing the user to schedule discovery for one or more times in the future.
Tabbed Control	Provides controls for various Discover settings. Each tab is described in more detail below.

4.6.1.3.1. Source Tab

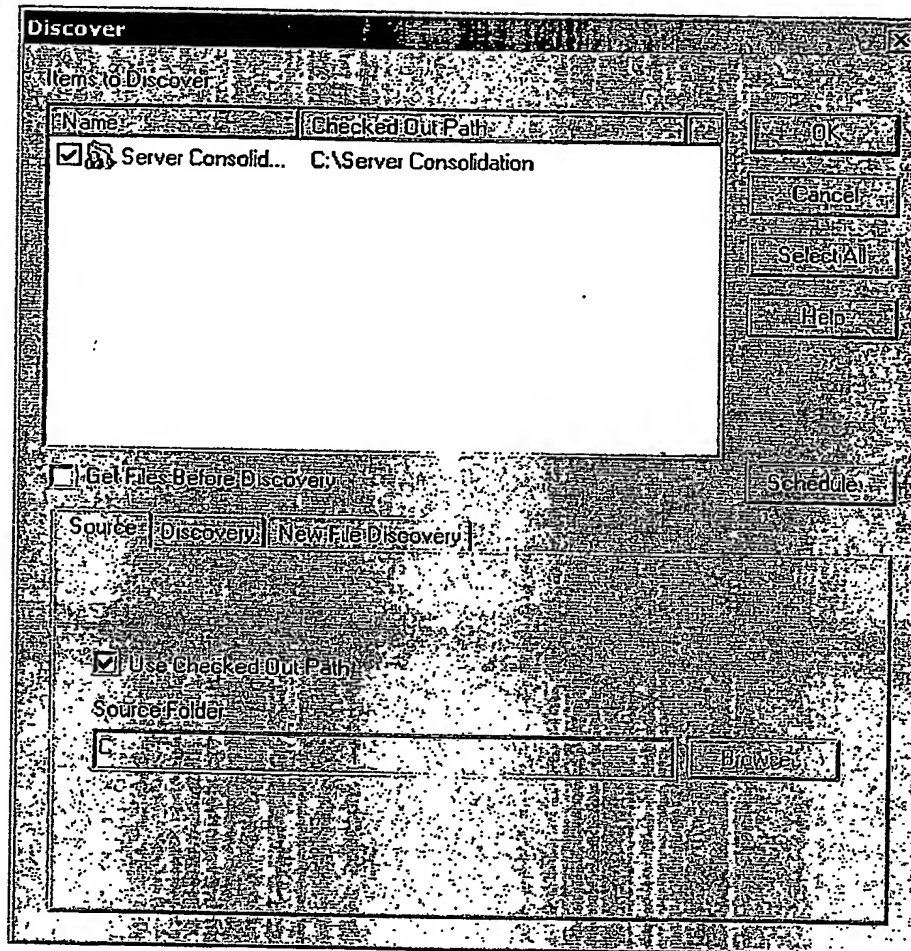
The Source tab provides controls for setting the source path for the Server Consolidation Project.

Initially, if all Server Consolidation projects in the list have a checked out path assigned to them, then the Use Checked Out Path checkbox will be checked and the Source Folder field and Browse button will be disabled. The Source Folder field will display the checked out path if there is only one item or any common root folder of all checked out paths if there is more than one item in the list. If one or more items in the list

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do not have a checked out path assigned, then the Use Checked Out Path checkbox will be unchecked, the Source Folder field and Browse button will be enabled, and the user will be required to specify a Source Folder.



Field	Description
Use Checked Out Path	Whether or not to use the checked out path as the source folder. The Source folder and Browse button are disabled when Use Checked Out Path is checked.
Source Folder	Specifies the folder to discover files from.
Browse	When clicked, a Select Source Folder dialog displays to select the source folder.

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4.6.1.3.2. Discovery Tab

The Discovery tab provides controls for settings that determine the state of files discovered after the discovery sequence has run and the corresponding files stored in the AAM. Initially, the Make Read-Only checkbox will be checked and all other checkboxes will be unchecked. The Comment field will be empty.

The screenshot shows the 'Discover' dialog box with the 'Discovery' tab selected. The 'Items to Discover' list contains one item: 'Server Consolidation' with a checked checkbox. The 'Database Options' section includes checkboxes for 'Discover Subfolders', 'Keep Checked Out', and 'Force Checkin', all of which are unchecked. The 'File Options' section includes checkboxes for 'Remove Local Copy' (unchecked) and 'Make Read Only' (checked). A 'Comment' text box is empty. Buttons for 'OK', 'Cancel', 'Select All', 'Help', and 'Schedule' are on the right.

Field	Description
Discover Subfolders	Whether to update database with files from subfolders of the source folder.
Keep Checked Out	Whether to check out again after checking in.
Force Checkin	Whether to force checkin even if no changes have been made.
Comment	Description of revision being checked in or added.
Remove Local Copy	Whether to remove the local item from the file system.
Make Read-Only	Whether to make the local file read-only.

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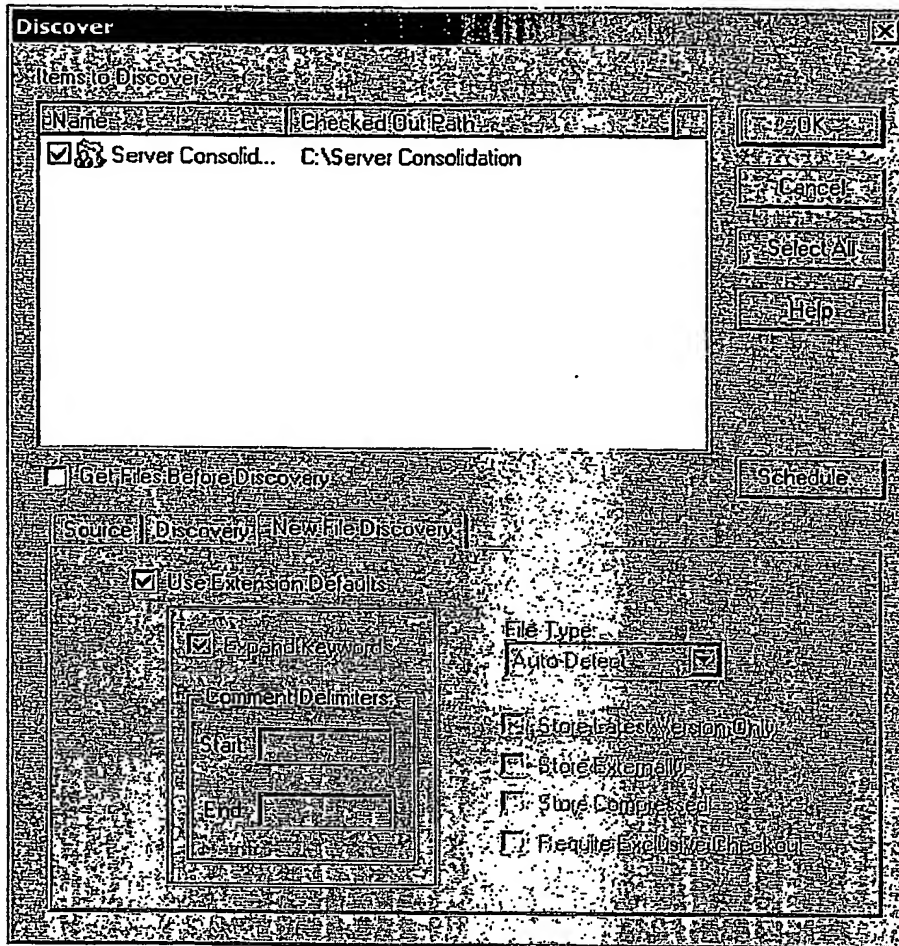
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4.6.1.3.3. New File Discovery Tab

The New File Discovery tab provides controls for settings that determine the state of any new files being created in the database during Discovery. Initially the Use Extension Defaults checkbox will be checked and all other controls will be disabled. If the Use Extension Defaults checkbox is unchecked then the other controls will be enabled.

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Field	Description
Use Extension Defaults	Whether to use the default options.
Expand Keywords	Whether to expand keywords embedded in the file contents.
Start Comment Delimiter	Beginning of comment in keyword expansions.
End Comment Delimiter	Ending of comment in keyword expansions.
File Type	Choice of Auto-Detect, Text, or Binary.
Store Latest Version Only	Whether to store only the latest version of the file in the database, after each checkin.
Store Externally	Whether to store the file contents in the file system, rather than in the database.
Store Compressed	Whether or not to store the contents of each added file in a compressed format. The file will be decompressed when retrieved from the database.
Require Exclusive Checkout	Whether only one person at a time can check out the file.

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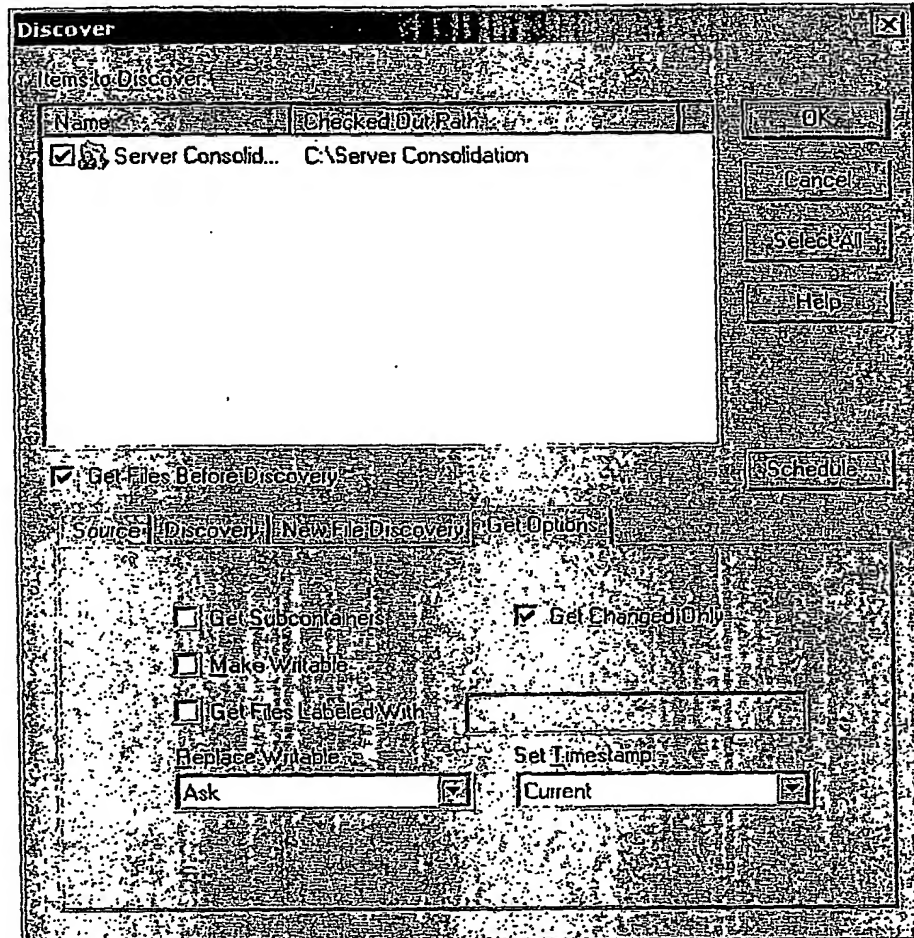
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4.6.1.3.4. Get Options Tab

The Get Options tab provides controls for settings that determine which objects are retrieved from the database. It will only be available if the "Get Files Before Discovery" checkbox is checked. Initially, the Get Changed Only checkbox will be checked and all other checkboxes will be unchecked. The Get Files Labeled With field will be disabled unless the user checks the Get Files With label checkbox. The Replace Writable dropdown list will be set to Ask, and the Set Timestamp dropdown list will be set to Current.



Field	Description
Get subcontainers	For each item listed, whether or not to get it's subcontainers.
Make Writable	Whether to make copies in file system writable.
Get Changed Only	Whether to get only items that have changed relative to copies in file system.
Get Files Labeled With	If a label is entered, the version of items with the given label will be obtained.
Replace Writable	If writable copies of the items are already in the file system, determines the course of action. Choices are Ask, Replace, Skip.
Set Timestamp	How to set the timestamp of the copy in the file system. Choice of Current, Modification, or Checkin.

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4.6.2. User Manual

When a user invokes the "Discover" command on one or more Server Consolidation Projects the Discover Dialog Box is displayed. A user may then select which Server Consolidation Projects to Discover in the "Items to be discovered" list. A user may navigate the various pages of the tabbed control by clicking on an individual tab. After selecting the desired options for the discover operation, or accepting default values, a user can choose "OK" to perform the Discover or "Cancel" to cancel the operation.

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4.7. Analyze Dialog

4.7.1. Overview

4.7.1.1. Purpose of Interface

The Analyze Dialog Box provides the user interface for performing Analyze operation including selection of which projects are to be analyzed as well as setting various analysis options.

4.7.1.2. Functions

The functions available on the dialog consist of standard 'OK', 'Cancel', 'Select All', and 'Help' buttons where 'OK' will analyze the project using the settings from the tab control described below. 'Cancel' will cancel the operation and 'Select All' highlights all items in the 'Items to be analyzed' list. 'Help' will bring up the Application Asset manager Help window for Analyze. There will also be a 'Schedule' button that will allow the user to schedule analysis. (Requirements T1055, T1219)

4.7.1.3. Form

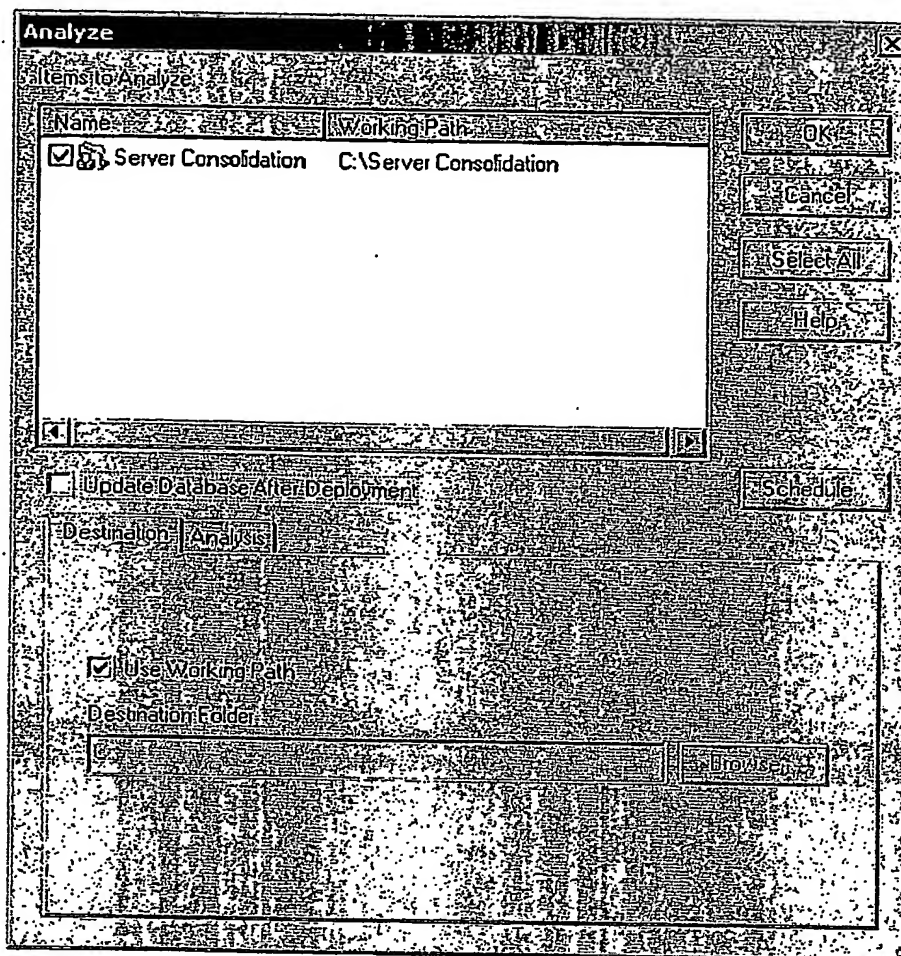
The Analyze Dialog Box will have similar size and the same general look as the Checkout or Checkin dialogs. That is, it will consist of a listview at the top-left with function buttons at the top-right and various controls for operation settings below. The listview contains all applicable items that were selected when the user chose the 'Analyze' menu command. Initially all items will be checked but individual items may be checked or unchecked to indicate whether they should be deployed. Only checked items will be analyzed. The Analyze Dialog will contain a tabbed control with four tabbed pages. Each page contains options related to a specific aspect of the Analyze operation and are described in further detail below.

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Field	Description
Items to Analyze	The list of items to analyze.
Select All	Highlight each item in the list box.
Update Files After Analysis	If checked, files will be updated in the database after the analysis process sequence is run.
Schedule	When clicked, the Task Scheduler Dialog will be displayed allowing the user to schedule analysis for one or more times in the future.
Tabbed Control	Provides controls for various Analysis settings. Each tab is described in more detail below.

4.7.1.3.1.Destination Tab

The Destination tab provides controls for setting the destination path for the Server Consolidation Project.

Initially, if all Server Consolidation Projects in the list have a working path assigned to them, then the Use Working Path checkbox will be checked and the Destination Folder field and Browse button will be disabled. The Destination Folder field will display the Server Consolidation Project working path if there is only one item or any common root folder of all working paths if there are more than one item in the list. If

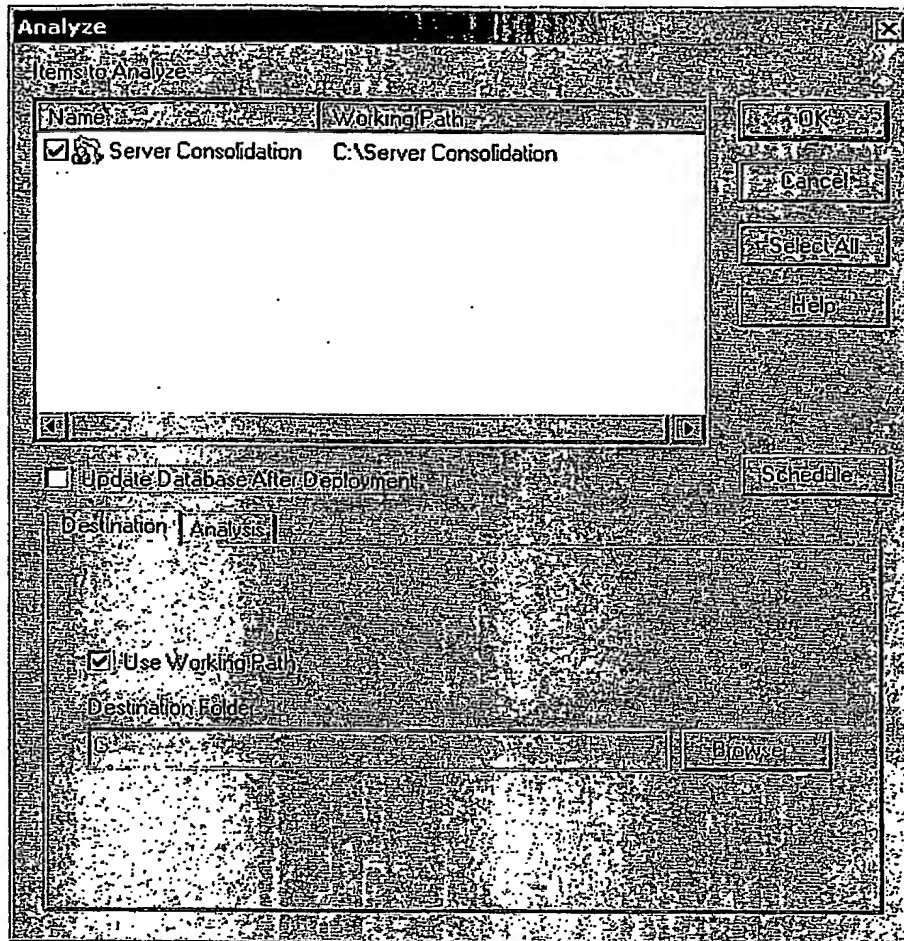
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- 1
 - 2
 - 3
 - 4
- one or more items in the list do not have a working path assigned, then the Use Working Path checkbox will be unchecked, the Destination Folder field and Browse button will be enabled, and the user will be required to specify a Destination Folder.

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Field	Description
Use Working Path	Whether or not to use the project working path as the project destination folder. The Destination folder and Browse button are disabled when Use Working Path is checked.
Destination Folder	Specifies the folder to get project files into.
Browse	When clicked, a Select Destination Folder dialog displays to select the project destination folder.

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4.7.1.3.2. Analysis Tab

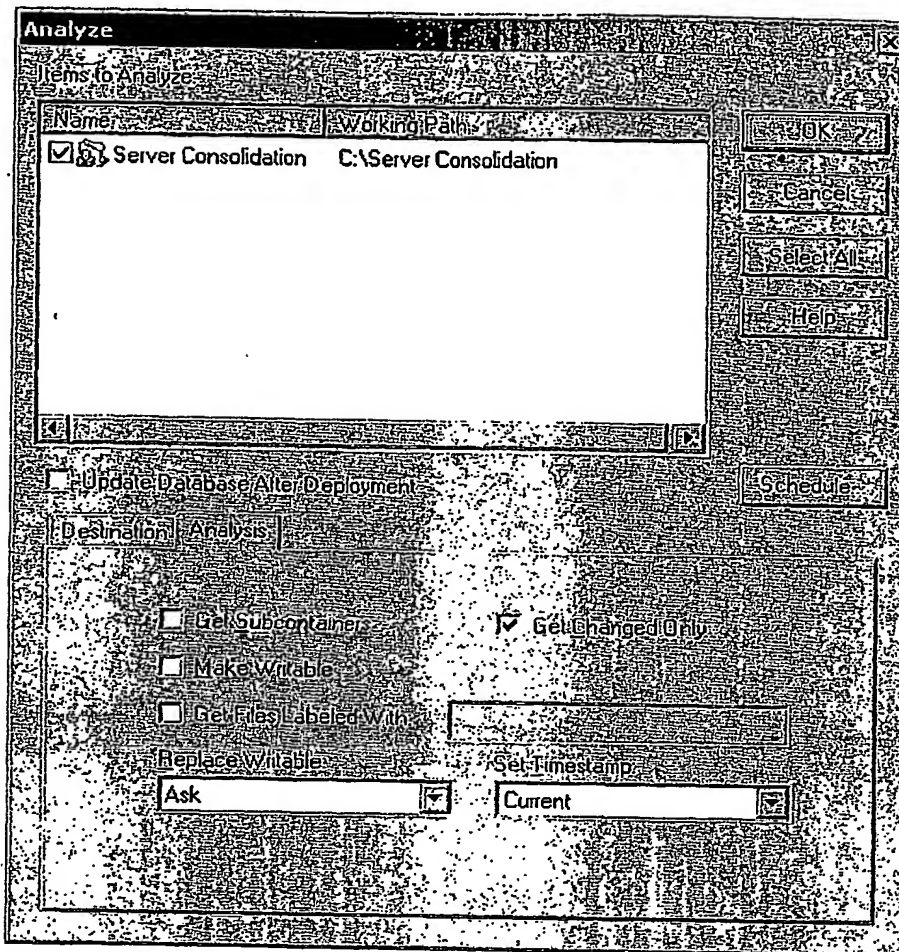
The Analysis provides controls for settings that determine which objects are retrieved from the database. Initially, the Get Changed Only checkbox will be checked and all other checkboxes will be unchecked. The Get Files Labeled With field will be disabled unless the user checks the Get Files With label checkbox. The Replace Writable dropdown list will be set to Ask, and the Set Timestamp dropdown list will be set to Current.

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Field	Description
Get subcontainers	For each item listed, whether or not to get it's subcontainers.
Make Writable	Whether to make copies in file system writable.
Get Changed Only	Whether to get only items that have changed relative to copies in file system.
Get Files Labeled With	If a label is entered, the version of items with the given label will be obtained.
Replace Writable	If writable copies of the items are already in the file system, determines the course of action. Choices are Ask, Replace, Skip.
Set Timestamp	How to set the timestamp of the copy in the file system. Choice of Current, Modification, or Checkin.

4.7.1.3.3. Checkin Options Tab

The Checkin Options tab provides controls for settings that determine the state of files after the analyze sequence has run and the corresponding files stored in the AAM. This tab will only be available if the

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"Update Files After Analysis" checkbox is checked. Initially, the Make Read-Only checkbox will be checked and all other checkboxes will be unchecked. The Comment field will be empty.

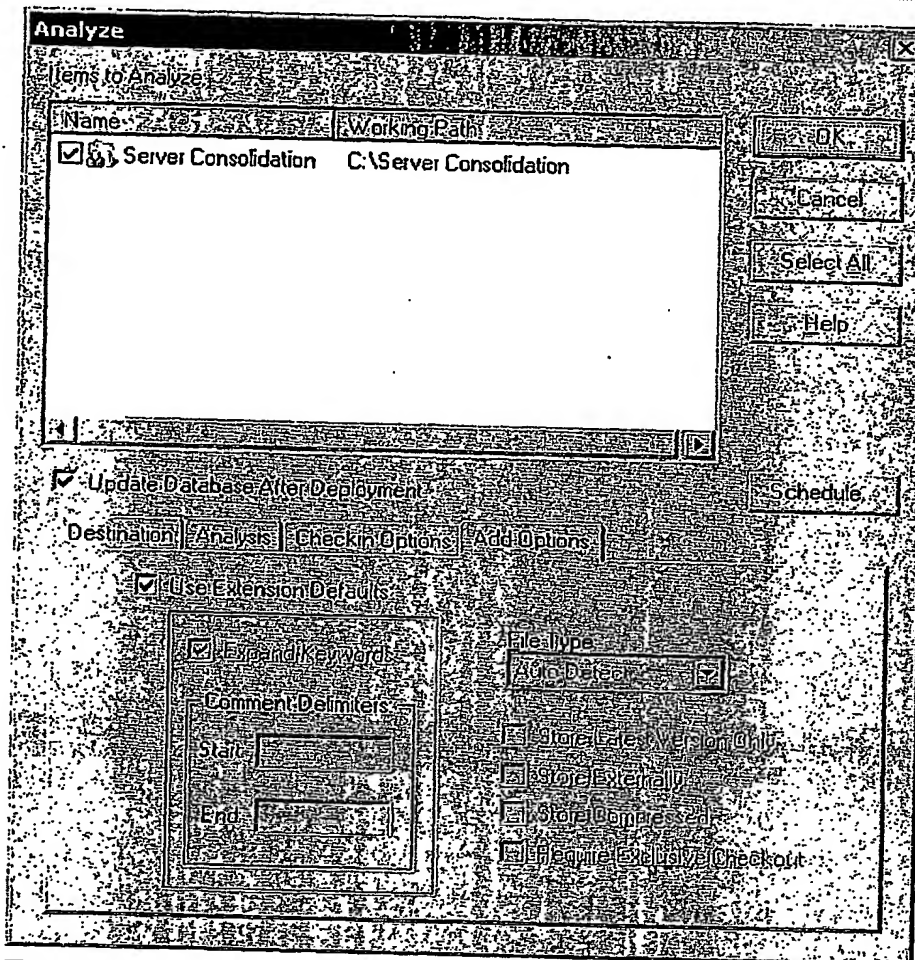
Field	Description
Discover Subfolders	Whether to update database with files from subfolders of the destination folder.
Keep Checked Out	Whether to check out again after checking in.
Force Checkin	Whether to force checkin even if no changes have been made.
Comment	Description of revision being checked in or added.
Remove Local Copy	Whether to remove the local item from the file system.
Make Read-Only	Whether to make the local file read-only.

4.7.1.3.4.Add Options Tab

The Add Options tab provides controls for settings that determine the state of any new files being created in the database during the update after analysis. This tab will only be available if the "Update Files After Analysis" checkbox is checked on the dialog. Initially the Use Extension Defaults checkbox will be checked and all other controls will be disabled. If the Use Extension Defaults checkbox is unchecked then the other controls will be enabled.

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Field	Description
Use Extension Defaults	Whether to use the default options.
Expand Keywords	Whether to expand keywords embedded in the file contents.
Start Comment Delimiter	Beginning of comment in keyword expansions.
End Comment Delimiter	Ending of comment in keyword expansions.
File Type	Choice of Auto-Detect, Text, or Binary.
Store Latest Version Only	Whether to store only the latest version of the file in the database, after each checkin.
Store Externally	Whether to store the file contents in the file system, rather than in the database.
Store Compressed	Whether or not to store the contents of each added file in a compressed format. The file will be decompressed when retrieved from the database.
Require Exclusive Checkout	Whether only one person at a time can check out the file.

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4.7.2. User Manual

When a user invokes the "Analyze" command on one or more Server Consolidation Projects the Analyze Dialog Box is displayed. A user may then select which Server Consolidation Projects to analyze in the "Items to be analyzed" list. A user may navigate the various pages of the tab control by clicking on an individual tab. After selecting the desired options for the analyze operation, or accepting default values, a user can choose "OK" to perform the Analyze or "Cancel" to cancel the operation.

4.8. AAM Discovery Tool

4.8.1. Overview

4.8.1.1. Purpose of Interface

The AAM Discovery tool (AAMDiscover.exe) is a command line executable to run and schedule discovery operations once the options have been selected within AAM. (Requirements T1015)

4.8.2. User Manual

The following is the command line interface when invoking AAMDiscover.exe:

usage:

AAMDiscover.exe [options] path [{path}]

options:

[General | Get Options | Discovery | New File Discovery]

path:

Database path of item(s) to discover.

General:

-?	Help, displays this text.	
-d <database name>	The name of the database to open.	Default: None
-get	Enable get options.	Default: False
-i <user id>	The login id for this user.	Default: None
-t	Trace to log file.	Default: False
-q	Quiet (Suppress all output).	Default: False
-z <password>	The password for this user.	Default: None

Get Options:

-ch	Get changed subcontainers only.	Default: All
-L <label>	Get items with version label, <label>.	Default: Null
-p <path>	Get destination folder.	Default: Working path
-rep	Replace writable items.	Default: Skip
-sub	Get subcontainers.	Default: False
-time [Current Modified Checkin]		

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1		Set items timestamp.	Default: Current
2	-w	Make writable.	Default: Read only
3	Discovery:		
4	-c <string>	Comment to add to database.	Default: ""
5	-k	Keep database item checked out.	Default: False
6	-force	Force database item Checkin.	Default: False
7	-rem	Remove local file copy.	Default: False
8	-read	Make local file read only.	Default: False
9	New File Discovery:		
10	-cStartDel <string>	Starting comment delimiter(s).	Default: ""
11	-cEndDel <string>	Ending comment delimiter(s).	Default: ""
12	-compress	Store the file compressed.	Default: False
13	-exclusive	Set exclusive checkout.	Default: False
14	-extensions	Set new file extensions attributes.	Default: Database
15	-external	Store the file external to the database.	Default: False
16	-expand	Expand file key words.	Default: False
17	-fileType [AutoDetect Binary Text]		
18		File storage type in database.	Default: AutoDetect
19	-latestVer	Store the latest version of the file only.	Default: False

4.9. AAM Deployment Tool

4.9.1. Overview

4.9.1.1. Purpose of Interface

The AAM Deployment tool (AAMDeploy.exe) is a command line executable to run and schedule deployment operations after the options have been selected within AAM. (Requirements T1014)

4.9.2. User Manual

usage:

AAMDeploy.exe [options] path [{path}]

options:

[General | Deploy | Checkin Options | Add Options]

path:

Database path of item(s) to deploy.

General

-? Help, displays this text.

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1	-d <database name>	The name of the database to open.	Default: None
2	-i <user id>	The login id for this user.	Default: None
3	-t	Trace to log file.	Default: False
4	-q	Quiet (Suppress all output).	Default: False
5	-update	Enable update (Checkin and Add)	Default: False
6	-z <password>	The password for this user.	Default: None
7	Deploy Options		
8	-ch	Get changed subcontainers only.	Default: All
9	-L <label>	Get items with version label, <label>.	Default: Null
10	-p <path>	Get destination folder.	Default: Working path
11	-rep	Replace writable items.	Default: Skip
12	-sub	Get subcontainers.	Default: False
13	-time [Current Modified Checkin]		
14		Set items timestamp.	Default: Current
15	-w	Make writable.	Default: Read only
16	Checkin Options:		
17	-c <string>	Comment to add to database.	Default: ""
18	-k	Keep database item checked out.	Default: False
19	-force	Force database item Checkin.	Default: False
20	-rem	Remove local file copy.	Default: False
21	-read	Make local file read only.	Default: False
22	Add Options:		
23	-cStartDel <string>	Starting comment delimiter(s).	Default: ""
24	-cEndDel <string>	Ending comment delimiter(s).	Default: ""
25	-compress	Store the file compressed.	Default: False
26	-exclusive	Set exclusive checkout.	Default: False
27	-extensions	Set new file extensions attributes.	Default: Database
28	-external	Store the file external to the database.	Default: False
29	-expand	Expand file key words.	Default: False
30	-fileType [AutoDetect Binary Text]		
31		File storage type in database.	Default: AutoDetect
32	-latestVer	Store the latest version of the file only.	Default: False
33			

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 Version B

1 Appendix A: Requirements

Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area [2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T840: Simplify AAM configuration Simplify AAM configuration by making as many tasks as possible more programmatic (for example, consider tasks related to FTP, Terminal Services, and privileges).	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Manag eability	Accep ted	High	5030 10	1.1	
T1007: Generate the universe configuration file from the wizard AAM Configuration Wizard. Generate the Griffin universe configuration file from the wizard. Additional pages will be added to the wizard to collect audit and data partition count, size, and location information.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accep ted	Mediu m	5030 10	1.1	
T1008: Report a warning instead of an error if FTP is not installed The AAM Configuration Wizard will report a warning instead of an error if FTP is not installed.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accep ted	Mediu m	5030 10	1.1	
T1009: Support for Server Consolidation folders. AAM Shell. A Server Consolidation folder extension with server consolidation discovery and deployment tags will be added to the AAM.xml file. This file is used to populate the database with file and folder extensions at database creation time.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accep ted	Mediu m	5030 10	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area [2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1010: Add Server Consolidation folder to the File/New menu AAM Shell. In addition to the Server Consolidation menu item on the AAM Shell menu bar, if the Server Consolidation folder extension is registered on the current folder, a Server Consolidation folder item will be added to the File/New submenu and the New submenu in the AAM Shell list view context menu.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1011: New dialogs for Add/Modify properties of Analysis and Discovery AAM Shell. For Server Consolidation folders, the Analysis(Deploy) and Discovery property pages will be modified to move the application path name, parameters, etc. to a new dialog that is displayed when the Add or Modify button is pushed on the Analysis or Discovery property page. The new dialog for Add and Modify from the Discovery property page will have a button to start the Server Consolidation wizard.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area [2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1014: Add a "smart" command line application for Deployment. AAM Deploy. Write a command line application called "AAMDeploy.exe" that will copy files from a folder in an AAM database, and then execute a sequence of commands read from a file.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1015: Add a "smart" command line application for Discovery AAM Discovery. Write a command line application called "AAMDiscover.exe" that will execute a sequence of commands read from a file, and then update a folder in an AAM database and executes a sequence of commands read from a file.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1049: Add a Server Consolidation menu item to the AAM Shell If the Server Consolidation folder extension is registered on the current folder, a Server Consolidation menu item will be displayed on the AAM Shell menu bar. The Server Consolidation menu item will display a dropdown containing New Folder, Discovery, Analysis, and Help items. The Discovery and Analysis options are only enabled when a Server Consolidation folder is selected in the AAM Shell.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlp nt Mgr [1 - Filt:Y Srt:N]	Product Area [2 - Filt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1050: Add menu item for Server Consolidation /Discovery AAM Shell. Selecting the Server Consolidation /Discovery menu item in the AAM Shell will bring up another submenu containing items to Configure discovery and Run discovery.	P D L	Lefebvre, C	Stefaniak, J	Platform Software	Functionality	Accepted	Medium	503010	1.1	
T1051: Implement a Server Consolidation configuration wizard. Selecting the Server Consolidation /Discovery /Configure submenu item will start up the Server Consolidation wizard. The Server Consolidation wizard will contain pages that collect information needed to build the psexec command line required for Server Consolidation.	P D L	Lefebvre, C	Stefaniak, J	Platform Software	Functionality	Accepted	Medium	503010	1.1	
T1052: Implement Server Consolidation /New Folder Server Consolidation /New Folder menu item will be implemented. When selected this item will create an Server Consolidation Folder in the current folder.	P D L	Lefebvre, C	Stefaniak, J	Platform Software	Functionality	Accepted	Medium	503010	1.1	
T1053: Implement Server Consolidation Help AAM Shell. Selecting the Server Consolidation /Help menu item will bring up help text relative to Server Consolidation.	P D L	Lefebvre, C	Stefaniak, J	Platform Software	Functionality	Accepted	Medium	503010	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area [2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1054: Implement an AAM Shell Discovery/Run dialog AAM Shell. Selecting the Server Consolidation /Discovery/Run submenu item in the AAM Shell will bring up a Server Consolidation Discover dialog.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1055: Implement Analyze dialog for Server Consolidation AAM Shell. Selecting the Server Consolidation /Analysis menu item in the AAM Shell will bring up the Analyze (Deploy) dialog.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1214: Update AAM Analysis Tool to Windows standard features Update the AAM Analysis Tool to feature Window standard features such as: column header sort, browse feature, CTRL/SHIFT for multiple item select, etc.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	
T1215: Unique file extension for analysis files The input data files for Analysis.exe must have a unique extension that is recognized by the Shell and Analysis.exe	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	
T1216: Analysis Tool to accept file path names on command line Analysis.exe must allow zero or more file path names on its command line. When Analysis.exe starts up it opens the files named on its command line	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area (2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1217: Implement Analysis property page for Server Consolidation folders The name of the Deployment property page will be changed to Analysis when the properties dialog is displayed for a Server Consolidation folder.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	
T1218: Server consolidation menu item in a server consolidation folders context menu When a Server Consolidation folder is selected in the AAM Shell tree view or list view its context menu will contain a Server Consolidation item instead of Deploy and Discover items. The Server Consolidation menu item in the context menu will be identical to the Server Consolidation menu item in the AAM Shell menu bar	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	
T1219: Implement Schedule feature for Deploy and Discover The Analyze and Discover dialogs will contain a "Schedule" button. When the Schedule button is pushed a file containing the process sequence will be written to the file system and an AAMDeploy or AAMDiscover task will be added to Windows Scheduler	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Open (under evaluation)	Medium	5030 10	1.1	

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Requirements	Im pl Or g	Prod Engr Mgr	Dvlpm nt Mgr [1 - Flt:Y Srt:N]	Product Area [2 - Flt:Y Srt:N]	Catego ry	Statu s	Priorit y	RDP Ref.#	Plann ed Rel Lvl	Tra ced -to
T1220: Analyze item in context menu of Server Consolidation folders When one or more files are selected in a Server Consolidation folder an Analyze item will be added to the popup menu	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Partial Accept	Medium	5030 10	1.1	
T1224: SQL query support in Analysis tool Implement SQL query capabilities for Analysis tool. All processes in memory using OLE DB Provider for XML with data results persisted and versioned in AAM database.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	
T1225: Online help for analysis tool query. Analysis tool. Implement online help which provides 'tutorial' for custom SQL query capabilities.	P D L	Lefebvre , C	Stefani ak, J	Platform Software	Functionality	Accepted	Medium	5030 10	1.1	

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Title: AAM Database Discovery
Type: Functional Design Specification
Owner: Mac Vazehgoo

68905330
Version A

Abstract:

AAM SQL Server Database discovery is designed to facilitate SQL server Consolidation. It automates much of the information gathering and analysis process. It complements the information gathered through Process discovery. The information gathered is a detailed inventory of the customer's existing SQL Server estate - Servers, Instances, Databases, User and much more. The information collected is stored in Application Asset Manager database and is used by Analysis Manager during the analysis process.

The target server is selected by a client through a GUI interface as part of the overall discovery process. A discovery agent is pushed on the target server with a privileged user account and starts collecting information into an XML file format on client machine. The XML file is stored in AAM database permanently with a tracking version. As part of the load process, the information in this file is read and transformed into a series of relational records and stored in a cache database for query purpose by Analysis Manager. The result of this effort is to assist with SQL Server Consolidation Process.

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Version A



AAM Database Discovery Functional Design Specification

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Version A

<u>Name</u>	<u>Role</u>	<u>Location</u>	<u>Mail Stop</u>	<u>Phone</u>
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Title: AAM Database Discovery
 Type: Functional Design Specification
 Owner: Mac Vazehgoo

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Title: AAM Database Discovery
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 Version A

1. Document Control

This document was generated using the PPG Template Generator, 3490 3880, revision J.

1.1. Change History

Version	Description
A	Initial Revision being written.

1.2. Document Cross Reference

The supported functionalities that are documented in here are in reference to MSOR requirements. The following is a partial list of MSOR requirements that are being referenced within this document:

MSOR Reference 906.1.8: Detect differences in schema objects for roles, users, aliases, defaults, rules, user functions, stored procedures, triggers, tables, indexes, user-defined types, views, messages.

MSOR Reference 906.1.7: Detect None-Default sp_configure settings

MSOR Reference 906.2.1.1: Collect database sizes (space used, allocated for data and log)

MSOR References 906.2.1: Collect information on activity reporting (clients, logins, databases being used)

MSOR 906.2.2.1: Capture current sort/collation sequence

MSOR Reference 906.2.4: Identifying DTS packages

MSOR Reference 906.2.6: What type of replication is being used (Transaction, Merge, etc)

MSOR Reference 906.3.1: Identify non-standard modifications (user objects in master db)

MSOR Reference 906.4: Identifying login conflicts (duplicate names and conflicting permissions)

2. Introduction

AAM SQL Server Database discovery is designed to facilitate SQL server Consolidation. It automates much of the information gathering and analysis process. It complements the information gathered through Process discovery. The information gathered is a detailed inventory of the customer's existing SQL Server estate - Servers, Instances, Databases, User and much more. The information collected is stored in Application Asset Manager database and is used by Analysis Manager during the analysis process.

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2.1. Purpose

The purpose of this document is to describe the design and functionality of AAM SQL Database discovery process and how it is utilized for SQL Server Consolidation process.

2.2. Scope

This document describes what needs to be done in capturing the required database server information in order to support a committed list of MSOR requirements for SQL Server Consolidation process. In addition it covers functionalities desired by UK TCS that is also selected items from MSOR.

The target server is selected by a client through a GUI interface as part of the overall discovery process. A discovery agent is pushed on the target server with a privileged user account and starts collecting information into an XML file format on client machine. The XML file is stored in AAM database permanently with a revision. As part of the load process, the information in this file is read and translated into a series of relational records and stored in a cache database for query purpose by Analysis Manager.

2.3. Key Points

Throughout this document we refer to 3 different databases. The referenced databases are the following:

AAM DB: This is the Application Asset Manager database.

Discovery DB: This is the inventory database that is used to store the information collected from target SQL servers. It is a relational database that resides on client machine. The database type is either a Jet db or SQL Server type DB. Connection to this database is a local connection and may require login account.

Target SQL Server: This is the SQL Server instance where the inventory is taken from.

Note: The database discovery process requires SQL admin privileges account on the target SQL server.

To connect to an instance of SQL Server, typically two or three pieces of information are required:

- The network name of the computer on which the SQL Server instance is running.
- The instance name (optional, required only if it is named instance).
- Login identifier (ID). If this is not provided, a trusted connection is required which is authenticated by the SQL instance and should have been configured such.

3. Interdependencies

AAM Analysis Manager

PSEXEC

4. Functional Overview

This section describes the overall process managing the data gathering on the target server and storing them in an XML file.

On client request and from AAM workbench, the Database Discovery process is spawned by PSEXEC program and is executed on the target server. When the process starts, the following occurs:

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1 Captures the SQL Server name and version on the target machine.

2 For each instance of the SQL server on target machine,

3 For each database schema

4 Collect schema information (tables, views, indexes, roles, etc)

5 User logins, permissions and roles

6 User objects in the master db

7 Database names and logins and database client names

8 SQL configuration settings

9 Collation settings

10 Jobs and task

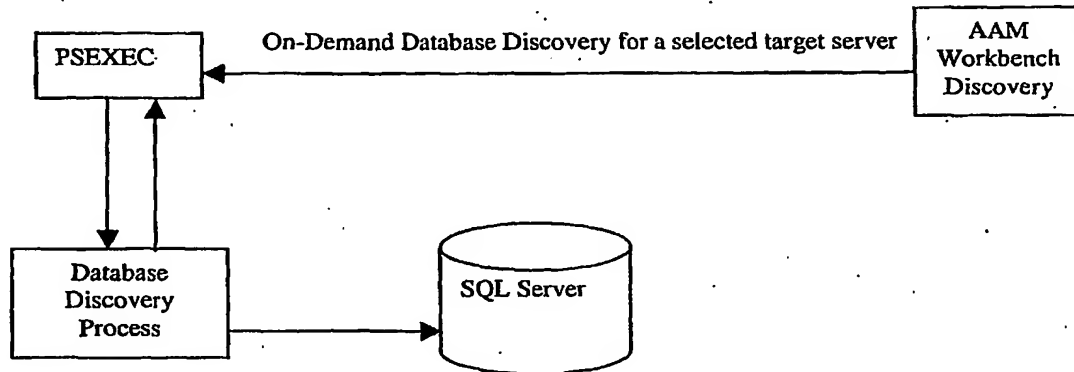
11 SQL alerts

12 Replication

13 DTS packages list

14 Database size and log size information

15
 16 The following figure represents the process flow in capturing the data.



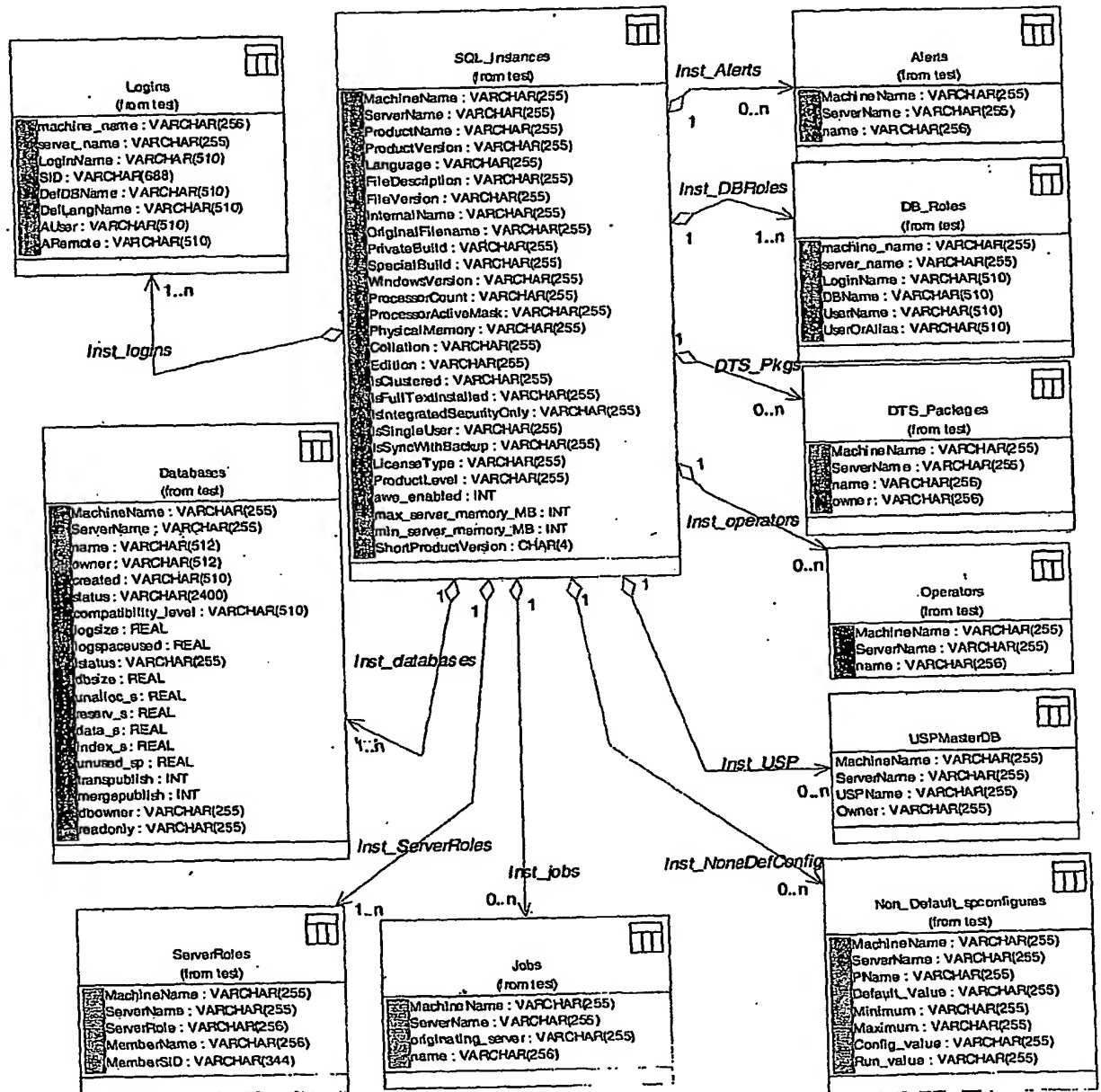
28 The data collected in the XML file is later loaded into a relational schema for analysis purpose. The
 29 process for loading is not described in this document

30

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4.1. Discovery database Schema



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4.2. Major Functions

Instances: This provides a collection of SQL server instances broken down by version information.

Sp_configure: This provides non-default configuration parameters by server. MSOR Reference 906.1.7

Database sizes: This provides the amount of space actually being used by each database. MSOR Reference 906.2.1.1

Collation: This provides the sort order and code pages being used by each SQL instance. MSOR 906.2.2.1

Logins and Server roles: This provides details of login names in the server population and their assigned default database names. Also collects information on server roles that may have been assigned to a login.

DB roles: Collects the login's database roles.

Jobs/Alerts/Operators/DTS packages: Gathers information for Jobs/Alerts/Operators and DTS packages on multiple servers. MSOR Reference 906.2.4

Replication: Provides information on whether replication is allowed for those databases. MSOR Reference 906.2.6

User stored procedures: Collects those user-stored procedures within the master database. MSOR Reference 906.3.1 (user objects)

Login Activity: This provides the logins and the database and their active clients.

MSOR References 906.2 including the Database sizes and Activity reporting items only.

Login/Permission Conflicts: This report shows the duplicate login names with conflicting permission. MSOR Reference 906.4

Schema Information: This provides schema scripts for databases within the target SQL server. MSOR Reference 906.1.8

Loading into Analysis Database: This includes reading XML file and populating Analysis database with the data collected.

5. Functional Description

5.1. Function DiscoverSchemaInfo

MSOR 906.1

The goal in here is the ability to detect differences between database objects for duplicate databases on multiple servers. The following database objects are captured for comparison:

Roles, Users, Aliases, Defaults, Rules, Functions, User defined datatypes, User messages, Tables, Views, Indexes, Extended procedures, Stored procedures and Triggers.

The extend of the differences are not known at this time but given that it is compared to what Embarcadero software provides, could be rather detailed.

There are several methods available to achieve this goal. The method chosen for this implementation is to utilize T-SQL and inquiring the catalogue information from system tables. Other methods were considered as alternatives and is listed in the Appendix B.

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5.2. Function GetDatabaseActivity

MSOR 906.2

The information on logins and databases and their active clients are collected through this function.

SQL Server available system stored procedures are used to capture this information. We would use a join query against Sysprocesses and sysdatabases tables to capture the information.

```
SELECT dbs.[name], [program_name],[loginame] FROM [master].[dbo].[sysprocesses] procs,
[master].[dbo].[sysdatabases] dbs Where procs.[dbid] = dbs.[dbid] And Len([program_name]) > 0
```

5.3. Function GetUserObjects

MSOR 906.3

The function interrogates Master db for any user objects. System Stored procedures are used to capture the data. The function looks for user type objects in the master database and the ones found along with their description and contents is written to XML file to be stored in the cache database.

```
SELECT CONVERT(char(32), host_name()) as MachineName, ServerName = CASE
@@servername WHEN null THEN CONVERT(char(32), host_name()) ELSE CONVERT(char(32),
@@servername) END, o.name as StoredProcName, u.name as OwnerName FROM
master..sysobjects o, master..sysusers u WHERE o.uid = u.uid and o.type = 'P' and o.category = 0
and o.name <> 'sp_helpsql'
```

5.4. Function GetDatabaseInfo

MSOR 906.3

To identify the potential login problems like duplicate names in more than one server and the conflicting permission, this function captures the logins and permissions via the stored procedures available.

For each instance get the list of logins and their roles for each database within that instance.

5.5. Function GetConfigurationSettings

The configuration information such as from sp_configure, is extracted, would be compared against the default settings for a particular version of SQL Server. We should save a default configuration of each version of SQL Server and compare the current setting against these default settings and report the differences.

5.6. Function GetSQLInstancesInfo

Here we collect the product version, edition, service pack, Collation, etc.

We make use of SQL Server function ServerProperty to get some of this information.

```
Select CONVERT(char(32), serverproperty('Collation')) as 'Collation',
CONVERT(char(32), serverproperty('Edition')) as 'Edition',
```

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```

1      CONVERT(char(32), serverproperty('Engine Edition')) as 'Engine Edition',
2      CONVERT(char(32), serverproperty('InstanceName')) as 'InstanceName',
3      CONVERT(char(32), serverproperty('IsClustered')) as 'IsClustered',
4      CONVERT(char(32), serverproperty('IsFullTextInstalled')) as 'IsFullTextInstalled',
5      CONVERT(char(32), serverproperty('IsIntegratedSecurityOnly')) as 'IsIntegratedSecurityOnly',
6      CONVERT(char(32), serverproperty('IsSingleUser')) as 'IsSingleUser',
7      CONVERT(char(32), serverproperty('IsSyncWithBackup')) as 'IsSyncWithBackup',
8      CONVERT(char(32), serverproperty('LicenseType')) as 'LicenseType',
9      CONVERT(char(32), serverproperty('MachineName')) as 'MachineName',
10     CONVERT(char(32), serverproperty('NumLicenses')) as 'NumLicenses',
11     CONVERT(char(32), serverproperty('ProcessID')) as 'ProcessID',
12     CONVERT(char(32), serverproperty('ProductVersion')) as 'ProductVersion',
13     CONVERT(char(32), serverproperty('ProductLevel')) as 'ProductLevel',
14     CONVERT(char(32), serverproperty('ServerName')) as 'ServerName'
15     For non-2k SQL server some of these fields will be null.

```

5.7. Function GetSQLJobsTasksAndAlerts

The purpose of this function is to capture list of Jobs, Alerts and Operators for an Instance.

List jobs via sysjobs table of msdb:

```

19     Select CONVERT(char(32), host_name()) as MachineName, ServerName = CASE @@servername WHEN null THEN
20     CONVERT(char(32), host_name()) ELSE CONVERT(char(32), @@servername) END,* from msdb..sysjobs

```

List Alerts via sysAlerts table of msdb:

```

22     SELECT CONVERT(char(32), host_name()) as MachineName, ServerName = CASE @@servername WHEN null THEN
23     CONVERT(char(32), host_name()) ELSE CONVERT(char(32), @@servername) END,[id],[Name].Event_source,
24     Event_category_id, Event_id, Message_id, Severity, Enabled, Delay_between_responses, Last_occurrence_date,
25     Last_occurrence_time, Last_response_date, Last_response_time, Notification_message, Include_event_description,
26     Database_name, Event_description_keyword, Occurrence_count, Count_reset_date, Count_reset_time, Job_id, Has_notification,
27     Flags, Performance_condition, Category_id, " as Event_category_name, " as Delay_between_notifications, " as Task_id, " as
28     Has_email_notification, " as Has_pager_notification FROM msdb..sysalerts

```

List Operators via sysOperators of msdb:

```

30     DECLARE @SQLVersion varchar(4)
31     SELECT @SQLVersion = SUBSTRING(@@version, 23, 4)
32     --Extract the information, dependant on SQL version
33     IF (@SQLVersion = '6.50')
34     SELECT CONVERT(char(32), host_name()) as MachineName, ServerName = CASE @@servername WHEN null THEN
35     CONVERT(char(32), host_name()) ELSE CONVERT(char(32), @@servername) END,* FROM msdb..sysoperators
36     Last_netsend_date, " as Last_netsend_time, " as Category_id FROM msdb..sysoperators
37     ELSE
38     IF (@SQLVersion = '7.00') or (@SQLVersion = '2000')
39     SELECT CONVERT(char(32), host_name()) as MachineName, ServerName = CASE @@servername WHEN null
40     THEN CONVERT(char(32), host_name()) ELSE CONVERT(char(32), @@servername) END,* FROM msdb..sysoperators
41

```

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5.8. Function GetReplicationAndDTSPackages

Collect info on databases where replication is allowed. Report in a list, server, instance and dbnames along with replication role (Publisher, Distributor, Subscriber) and replication type. The system Store procedure 'sp_helpreplicationdboption' is utilized to capture replication information. To capture DTS packages info, the following SQL statement is exercised:

```

DECLARE @SQLVersion varchar(4)
DECLARE @SQLString varchar(255)
SELECT @sqlversion = SUBSTRING(@@version, 23, 4)
IF (@SQLVersion = '6.50')
    select ''
ELSE
    IF (@SQLVersion = '7.00')
        IF @@ServerName is not Null
            SELECT @SQLString = 'SELECT CONVERT(char(32), host_name()) as MachineName,
CONVERT(char(32), @@servername) as ServerName,name,id,versionid,cast(description AS char(25)) as ShortDescription,
categoryid,createdate,owner, owner_sid, '' as PackageType from msdb..sysdtspackages'
        ELSE
            SELECT @SQLString = 'SELECT CONVERT(char(32), host_name()) as MachineName,
CONVERT(char(32), host_name()) as ServerName,name,id,versionid,cast(dcscription AS char(25)) as ShortDescription,
categoryid,createdate,owner, owner_sid, '' as PackageType from msdb..sysdtspackages'
        ELSE
            IF @SQLVersion = '2000'
                IF @@ServerName is not Null
                    SELECT @SQLString = 'SELECT CONVERT(char(32), host_name()) as MachineName,
CONVERT(char(32), @@servername) as ServerName,name,id,versionid,cast(description AS char(25)) as ShortDescription,
categoryid,createdate,owner, owner_sid,packagetype from msdb..sysdtspackages'
                ELSE
                    SELECT @SQLString = 'SELECT CONVERT(char(32), host_name()) as MachineName,
CONVERT(char(32), host_name()) as ServerName,name,id,versionid,cast(description AS char(25)) as ShortDescription,
categoryid,createdate,owner, owner_sid,packagetype from msdb..sysdtspackages'
            EXEC(@SQLString)

```

5.9. Function GetSQLDatabaseDiskUsage

We get the db size and log size for each database. Here we get the dbsize (used and free), logsize (used and free). Report it with server/instance/dbname.

Disk space utilization: Compare server disk space allocated with used spaces for all dbs.

Here is a sample code to go to each database and execute stored procedure 'sp_spaceused' to capture some of the information.

```

DECLARE AllDatabases CURSOR FOR SELECT name FROM sysdatabases --WHERE dbid > 4
OPEN AllDatabases
DECLARE @DBNameVar VARCHAR(128)

```

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```

1      DECLARE @Statement VARCHAR(255)
2      FETCH NEXT FROM AllDatabases INTO @DBNameVar
3      WHILE (@@FETCH_STATUS = 0)
4      BEGIN
5          SELECT @Statement = 'USE ' + @DBNameVar + CHAR(13)
6              + 'exec sp_spaceused'
7          EXEC (@Statement)
8          FETCH NEXT FROM AllDatabases INTO @DBNameVar
9      END
10     CLOSE AllDatabases
11     DEALLOCATE AllDatabases

```

To capture log size information, the following SQL statement is utilized:

```
DBCC SQLPERF(LOGSPACE) WITH NO_INFOMSGS
```

5.10. Function AnalysisAndReporting

A set of standard reports is provided which queries the Discovery database. The result is presented as grid and charts as appropriate. Additional reports can be constructed either via the query window or via standard SQL based query tools as required. The supplied reports must provide the following data:

Instances: This provides a quick view of the total number of SQL server instances broken down by version information.

Sp_configure: This shows non-default configuration parameters by server.

Unique DBs: This report lists the unique database names in the server population and gives a count and the name of the servers hosting the database.

Database sizes: This report shows the amount of space actually being used by each database.

Collation: This report indicates the sort order and code pages being used by each SQL instance.

Logins: This report details the unique login names in the server population.

Default DB Conflict: This report lists those users who have logins on more than one server but assigned with a different default database.

Server roles: This shows the different server roles that may have been assigned to a login.

Server role Conflicts: Showing those identical logins on multiple servers but with different server roles.

DB roles: Report the login's database roles.

Jobs/Alerts/Operators/DTS packages: Reporting the information for Jobs/Alerts/Operators and DTS packages on multiple servers.

Replication: Listing those databases where replication is allowed.

User stored procs: Listing those user stored procedures within the master database.

Login Activity: This report shows the logins and the database and their active clients.

Login/Permission Conflicts: This report shows the duplicate login names with conflicting permission.

Schema Conflicts: The report shows those duplicate named databases with conflicting schema objects.

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1 6. User Interfaces

2 Database discovery does introduce a new user interface similar to the one currently used for Process
3 discovery. For this user interface, in addition to the parameters for Process Discovery, parameters should
4 be provided to indicate the network name for target server and a privileged user account for that server.

5

6 < add a picture snapshot from workbench discovery in here >

7

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6.1. Interface <name>

6.1.1.Overview

6.1.1.1.Purpose of Interface

6.1.1.2.Functions

6.1.1.3.Form

6.1.2.User Manual

6.1.3.Additional Information

6.1.3.1.Security and Integrity

6.1.3.2.Diagnostic and Debug Methods

6.1.3.3.Performance

6.1.3.4.Future Enhancements

7. System Software Interfaces

7.1. Interface <name>

7.1.1.Overview

7.1.1.1.Purpose of Interface

7.1.1.2.Functions

7.1.1.3.Form

7.1.2.Interface Description

7.1.3.Additional Information

7.1.3.1.Security and Integrity

7.1.3.2.Diagnostic and Debug Methods

7.1.3.3.Performance

7.1.3.4.Future Enhancements

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8. Future Interfaces

9. Standards and Conformance

10. Release and Installation Procedures

11. Significantly Altered or Deleted Features

12. Issues and Risks

Schema discovery could be a problem in here. Discovering very large databases such as SAP could cause the discovery process to run for a few hours if it succeeds and also storing the discovered schema into Analysis database due to its size is another issue that has not been investigated fully.

13. Coding Estimates

The estimates are for code to implement the feature and load into Analysis database. It does not include Analysis Manager work and integration testing.

Task Name	Estimated days to complete
Get Instances information	3
Get non-default instance's configuration	5
Get Database sizes (data and log space)	3
Get Collation	1
Get Logins and Permissions	4
Get Server roles	1
Get DB roles	1
Get Jobs/Alerts/Operators/DTS packages	2
Get Replication	1
Get User stored procedures	3
Get Database/Login Activity	4
Get Schema Information	20
Loading into Analysis database	7

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Appendix A. Definitions, Acronyms, and Abbreviations

This is a sample entry

Use the "Gloss" paragraph style. Place the term or expression to be defined on the first line. Then enter 1 or 2 line breaks (<SHIFT> <ENTER>)- not paragraph breaks. Next enter the definition. The key is to keep one entry as one paragraph. If this is done, you can select all of the glossary entries and use the Sorting function (under the Table menu) to alphabetize them.

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Appendix B. Alternatives Considered

To collect schema information, the following methods were considered but they were not selected.

One method to get this information is to utilize SQL-DMO scripting method for the schema. This would create a file for a given database containing the Create statements for all the objects. The file then can be read into the XML file and stored as an image in the cache database. During the Analysis, when comparing two databases for their differences, we could read the images for the databases into files and run a Diff command and report the Diff file to the client. The issue in here is creating files on the server and XML file getting larger. Alternative to keeping the large schema script file in the XML file would be to keep them in separate files and have a reference in the XML file to the schema filename. This of course causes a major maintenance problem within AAM to keep the related files together and from removing them partially.

Another method would be to just call SQL-DMO cataloging information. We could then walk through the database objects one at a time and storing them in appropriate fields in the cache database. During the Analysis however, stored procedures required to scan two databases schema information and compare them for any differences. Next is to somehow show the differences report. With this approach, a major work is required to come close to what a Diff command reports when comparing two files. The information details are extensive.

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1 Appendix C. Database Schema

SQL Instances				
Column Name	Data Type	Length	Allow Nulls	
MachineName	varchar	255		
ServerName	varchar	255		
ProductName	varchar	255	✓	
ProductVersion	varchar	255	✓	
[Language]	varchar	255	✓	
FileDescription	varchar	255	✓	
FileVersion	SQL Instances	255	✓	
InternalName	varchar	255	✓	
OriginalFilename	varchar	255	✓	
PrivateBuild	varchar	255	✓	
SpecialBuild	varchar	255	✓	
WindowsVersion	varchar	255	✓	
ProcessorCount	varchar	255	✓	
ProcessorActiveMask	varchar	255	✓	
PhysicalMemory	varchar	255	✓	
[Collation]	varchar	255	✓	
Edition	varchar	255	✓	
IsClustered	varchar	255	✓	
IsFullTextInstalled	varchar	255	✓	
IsIntegratedSecurityOnly	varchar	255	✓	
IsSingleUser	varchar	255	✓	
IsSyncWithBackup	varchar	255	✓	
LicenseType	varchar	255	✓	
ProductLevel	varchar	255	✓	
awe_enabled	int	4	✓	
max_server_memory_MB	int	4	✓	
min_server_memory_MB	int	4	✓	
ShortProductVersion	char	4	✓	

DB Roles				
Column Name	Data Type	Length	Allow Nulls	
machine_name	varchar	255	✓	
server_name	varchar	255	✓	
LoginName	varchar	510	✓	
DBName	varchar	510	✓	
UserName	varchar	510	✓	
UserOrAlias	varchar	510	✓	

Databases				
Column Name	Data Type	Length	Allow Nulls	
MachineName	varchar	255		
ServerName	varchar	255		
name	varchar	512		
owner	varchar	512	✓	
created	varchar	510	✓	
status	varchar	2400	✓	
compatibility_level	varchar	510	✓	
logsize	real	4	✓	
logspaceused	real	4	✓	
lstatus	varchar	255	✓	
dbsize	real	4	✓	
unalloc_s	real	4	✓	
reserv_s	real	4	✓	
data_s	real	4	✓	
index_s	real	4	✓	
unused_sp	real	4	✓	
transpublish	int	4	✓	
mergepublish	int	4	✓	
dbowner	varchar	255	✓	
readonly	varchar	255	✓	

Logins				
Column Name	Data Type	Length	Allow Nulls	
machine_name	varchar	256	✓	
server_name	varchar	255	✓	
LoginName	varchar	510	✓	
SID	varchar	688	✓	
DefDBName	varchar	510	✓	
DefLangName	varchar	510	✓	
ALUser	varchar	510	✓	
ARemote	varchar	510	✓	

Operators				
Column Name	Data Type	Length	Allow Nulls	
MachineName	varchar	255	✓	
ServerName	varchar	255	✓	
name	varchar	256	✓	

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Column Name	Data Type	Length	Allow Nulls
version	varchar	8	
PName	varchar	255	✓
Minimum	varchar	255	✓
Maximum	varchar	255	✓
Config_value	varchar	255	✓
Run_value	varchar	255	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
WindowsVersion	varchar	255	✓
ProcessorCount	int	4	✓
ProcessorActiveMask	varchar	255	✓
PhysicalMemory	bigint	8	✓
OS_NAME	varchar	255	✓
Version	varchar	255	✓
System_Name	varchar	255	✓
System_Manufacturer	varchar	255	✓
System_Model	varchar	255	✓
System_Type	varchar	255	✓
Processor	varchar	255	✓
BIOS_Version	varchar	255	✓
Locale	varchar	255	✓
Time_Zone	varchar	255	✓
Total_Physical_Mem	real	4	✓
Available_Physical_Me	real	4	✓
Total_Virtual_Memory	real	4	✓
Available_Virtual_Mem	real	4	✓
Page_File_Space	real	4	✓

Column Name	Data Type	Length	Allow Nulls
machinename	varchar	255	✓
servername	varchar	256	✓
loginName	varchar	255	✓
dbname	varchar	255	✓
clientName	varchar	512	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
ServerName	varchar	255	✓
ServerRole	varchar	256	✓
MemberName	varchar	256	✓
MemberSID	varchar	344	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
ServerName	varchar	255	✓
USPName	varchar	255	✓
Owner	varchar	255	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
ServerName	varchar	255	✓
name	varchar	256	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
ServerName	varchar	255	✓
originating_server	varchar	255	✓
name	varchar	256	✓

Column Name	Data Type	Length	Allow Nulls
MachineName	varchar	255	✓
ServerName	varchar	255	✓
PName	varchar	255	✓
Default_Value	varchar	255	✓
Minimum	varchar	255	✓
Maximum	varchar	255	✓
Config_value	varchar	255	✓
Run_value	varchar	255	✓

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Column Name	Data Type	Length	Allow Null
MachineName	varchar	255	✓
ServerName	varchar	255	✓
name	varchar	256	✓
owner	varchar	256	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
ruleName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
userName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
tableName	varchar	255	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
tableName	varchar	255	✓
columnName	varchar	255	✓
colid	int	4	✓
coltype	varchar	255	✓
colisuidt	int	4	✓
collen	int	4	✓
colprec	int	4	✓
colscale	int	4	✓
colnullable	int	4	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
udtName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data Type	Length	Allow Null
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
funcName	varchar	255	✓
Description	varchar	1024	✓

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Column Name	Data type	Length	Allow Nulls
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
viewName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data type	Length	Allow Nulls
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
spName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data type	Length	Allow Nulls
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
msgName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data type	Length	Allow Nulls
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
defaultName	varchar	255	✓
Description	varchar	1024	✓

Column Name	Data type	Length	Allow Nulls
machineName	varchar	255	✓
serverName	varchar	255	✓
dbName	varchar	255	✓
trigName	varchar	255	✓
Description	varchar	1024	✓

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Here is the XML layout for the Schema information part only.

For each database within an SQL instance, there is an element called <SchemaInfo> containing the information.

```

<SchemaInfo
  <TableInfo
    <ColumnInfo name = "columnName goes here"
      Description = "column description goes here" />
    <ColumnInfo name = "columnName goes here"
      Description = "column description goes here" />
    <ColumnInfo name = "columnName goes here"
      Description = "column description goes here" />
    .....
    ..... more columns
    <TriggerInfo name = "triggerName " Description = " trigger description" />
    .....
    .....additional triggers
    <ConstraintInfo name = "constraintName "
      Description = "constraint description" />
    .....
    .....additional constraints
    <IndexInfo name = "indexName " Description = "index description" />
    .....
    .....additional indexes
  </TableInfo>
  .....
  .....additional tables go here
  <ViewInfo name = "viewName goes here"
    Description = "view description goes here" </ViewInfo>
  .....
  ..... more views
  <UdtInfo name = "UDTName goes here"
    Description = "UDT description " </UdtInfo>
  .....
  ..... more user-defined types
  <FunctionInfo name = "functionName goes here" .
    Description = "function description goes here" </FunctionInfo>
  .....
  ..... more user-defined functions
  <SPInfo name = "stored-procedureName goes here"
    Description = "Stored-procedure description goes here" </SPInfo>
  .....
  ..... more user stored-defined procs
  <DefaultsInfo name = "defaultName goes here"
    Description = "default description goes here" </DefaultInfo>
  .....

```

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```
1 .....: more defaults in here
2
3 <RuleInfo name = "ruleName goes here"
4     Description = "rule description goes here" </RuleInfo>
5 .....
6 ..... more rules in here
7
8 <UserInfo name = "userName goes here"
9     Description = "user description goes here" </UserInfo>
10 .....
11 ..... more user info in here
12
13 <UserMsgInfo name = "userMsgName goes here"
14     Description = "userMsg description goes here" </UserMsgInfo>
15 .....
16 ..... more user messages info in here
17
18 </SchemaInfo>
19
```

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1 Appendix D. Functional Design Summary

Require- ment ID	Requirement	Commit- ment	Source	Function

3
4

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